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EM23-8-95-P44-47
GEOFF CRAMMOND
The veteran game designer unplugged

SEGA SATURN
EM23-8-95-P50-55
Edge lifts the lid on the hardware

Voted Magazine of the year

EM23-8-95-P88-92
HOWARD LINCOLN
Nintendo's US Chairman on Ultra 64

EM23-8-95-P58-64
COMMODORE
The rise and fall of a computing legend

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Future Publishing


G



Sega first off the mark… But is it running scared?

To the uninitiated, Sega's surprise early launch of the Saturn in the US – and now in Europe – looks like a company getting its act together. The usual 18-month wait for new hardware was first slashed to ten months and then to just over eight. Sega must really be on the case…

But to **Edge** it smacks of a company grasping at straws. It is slowly becoming clear that, on a straightforward performance basis, Sony's system has the Saturn outclassed. And the first wave of software combatants has merely served to reinforce that view: for *Virtua Fighter* you have *Tekken*; for *Daytona USA* you have *Ridge Racer*; for *Gran Chaser* you have *Wipeout*. In every case the PlayStation arguably emerges the victor.

Given that Sony undoubtedly has the greater marketing muscle, Sega has instead relied on guerrilla tactics to shift Saturns, concentrating on simply getting units into retail before the competition.

Whether this approach will work in Sega's favour is another matter. The general public appears to be treating the new wave of videogame hardware with caution bordering on indifference. Jaguar and 3DO have hardly been roaring successes – irrespective of the minimal amount of advertising each has received.

Of course, advertising is something that Sega will be counting heavily on, but great software will be what makes the Saturn a success, not clever slogans.

Sega may have drawn first in the next-generation shoot-out. But has it got enough ammunition?

The **future** is almost here…

Voted Magazine of the year
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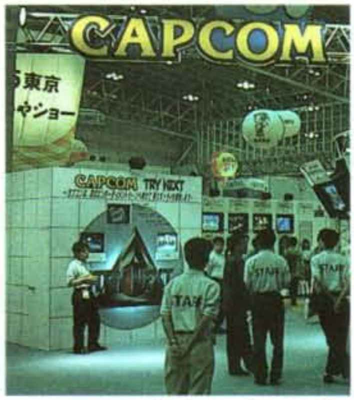




insideview

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E^3 (left) and the Tokyo Toy Show

23 Prescreen





Urban Decay (left) and *Destruction Derby*

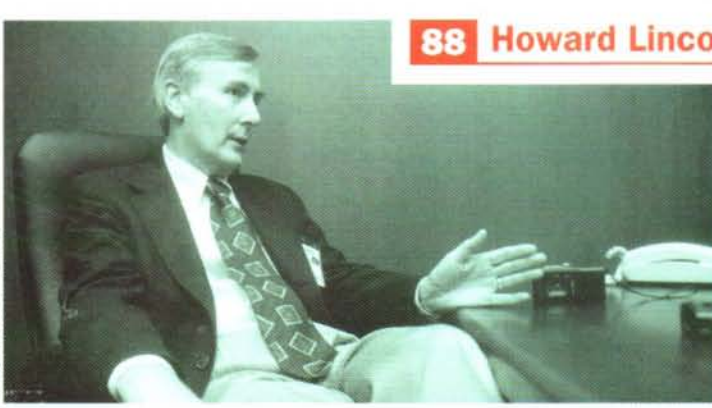
Testscreen 65

Star Trek (left) and *Puzzle Bobble*





88 Howard Lincoln



Photography: Jude Edginton

E³: Sega surprises with **Saturn** launch/**page 6** • **Sony**'s strong showing/**page 8** • 3DO's new machines revealed/**page 8** • **ultra** quiet at Nintendo/**page 10** • Jaguar CD & VR/**page 10** • **Escom:** the future of **Commodore** and the **Amiga**/**page 12** • **Tokyo** Toy Show report/**page 14**



The latest **news** from the world of interactive entertainment

E³: Saturn sneaks out, 32bit dominates

The games industry's most anticipated event debuts with a bang

ELECTRONIC
ENTERTAINMENT
E X P O

Los Angeles, Wednesday 10 May. 9am: staff at Toys 'R' Us, Babbages, Electronics Boutique and Software Etc stores across the USA secretly start stacking Sega Saturn boxes on their shelves. Pre-empting its own announced September 2 launch date, Sega is firing the first shot in the US next-generation videogame war. 5.30pm: Steve Race, Sony Computer Entertainment's president, 'officially' unveils the PlayStation to the US press. He announces a release date of September 9, and tomorrow will confirm that the machine will cost $299. At 7.30pm, just two hours later, in a hotel less than half a mile from Sony's press conference, Trip Hawkins shows off M2 to a conference hall crammed with gaming journalists, developers and software publishers. At the same time, Nintendo throws a cocktail party for over 3000 people.

And all this is before the Electronic Entertainment Exposition (E³) has even officially opened. It was the largest videogame show ever and every major player met to cement deals, scout out the competition and just show off. For observers, E³ provided a unique insight into what shape videogames will take in the rest of 1995.



The Convention Center's airy interior played host to the latest in videogames



The Los Angeles Convention Center in downtown Los Angeles was a spectacular success. Now, if only it wasn't held in downtown LA...

There were some great new games showcased. Among the best were Delphine's *Crossfire*, Amazing Studio's *Heart Of Darkness*, Psygnosis' *Wipeout* and *Destruction Derby*, Nintendo's *Killer Instinct*, Single Trac's *Twisted Metal* and Sega's *VectorMan*. Some surprising announcements were also made, the most significant being Nintendo's withdrawal of Ultra 64 from the 1995 schedules and Sega's →



Sega's mammoth stand featured, amongst other things, its range of available Saturn games and a selection of its superb coin-ops (right)





The Saturn stand had a strangely muted atmosphere. But the biggest surprise was how few new games were actually on display for Sega's CD console

→ revelation that Saturn's release date was being brought forward.

The best kept secret of E³ became common knowledge on the morning of Thursday 11 May. **Tom Kalinske**, president and CEO of Sega Of America, gleefully announced to an astounded conference that the 'Saturnday' September 2 launch was a decoy, and that: 'We [Sega] started our roll-out yesterday; we're at 1800 stores around the US and Canada today.'

Sony had learned of its rival's move a few hours before its own 'official unveiling' of the PlayStation (Steve Race made no comment on Sega's launch but said that he was 'ecstatic' about the delay of Ultra 64). At $449 with *Virtua Fighter* bundled and $399 for a standalone Saturn, the retail price was as expected. **Edge** discovered that the retail chains carrying the Saturn are making no profit on the hardware (buying them from Sega direct at $399), and are instead aiming to make a profit on the five games available at launch. While this news makes a price drop unlikely in the near future, it could be that Sega will attempt to counter the PlayStation's $299 September launch by bundling more than one title.

Disappointingly, Sega had little new Saturn software on display apart from existing Japanese titles. Instead, it relied on a four-player *Sega Rally* link-up and the early Saturn launch to make an impression. The 32X, desperate for a life-giving injection of decent software, was left to its fate, while the only Mega Drive title of note was an *Earthworm Jim*-inspired platformer called *VectorMan*.

Whether Sega's surprise Saturn launch is the move of a company

Who is it?

This husband-and-wife team set up one of the first and most successful computer games companies, and revolutionised the adventure game, creating a whole new genre in the process



Making a surprise appearance at Sony's ultra-extravangant E³ party was a star in need of publicity. Edge was lucky and didn't spend ages trying to get this picture (honest)







Sony's PlayStation stand had more games of interest than any other. Coin-op conversions such as *Darkstalkers* (right) were outnumbered by original titles like Factor 5's excellent *Ballblazer X* (above right)

ahead of the game or frightened into a hasty attempt to gain a head start remains to be seen.

E³ was Sony Computer Entertainment's first US trade show, and the company spent a rumoured $4 million on ensuring that its booth (if such a megalith could be called a booth) sent a strong enough message to its competitors. PlayStation demonstration set-ups dominated the floor of Sony's domain, offering hands-on tasters of upcoming PlayStation titles, including *Wipeout* (see page 28) and *Mortal Kombat 3* (see page 26).

Its ironic that Sony, which was the company most expected to rely on corporate hype to mask concrete plans and smoke and mirrors to disguise a lack of software, was perhaps the most upfront of the 'big three'. While Nintendo endeavoured to insist that the conspicuous absence of Ultra 64 didn't detract from its show line-up and Sega rode the wave of E³'s hottest news, SCE quietly got on with the business of rolling out its plans and showing off its games. However, it couldn't resist arranging for Michael Jackson to show up at the movie studio venue of the $2 million PlayStation party.

Namco expressed disappointment, and not just a little surprise, at SCE's decision to sell the PlayStation without a bundled game. Steve Race failed to dodge an awkward question concerning Sam Tramiel's interpretation of Sony and the ITC's pricing laws at Sony's press reception. Namco could take consolation from *Tekken*'s critical success; Sony Imagesoft displayed some encouraging games, especially *ESPN Extreme*, Single Trac's *Twisted Metal* and *WarHawk*; and Psygnosis wowed everyone with *Wipeout* and *Destruction Derby*.

The PlayStation's – and SCE's – impressive show of form continues.

With no news of a significant price cut of the basic 3DO unit – other than Goldstar's token $50 rebate on a →



3DO's X-O-Tron VR contraption costs a mere $22,000 for the basic set-up. It certainly is a 'unique form of exercise and entertainment'

it is...

Ken and Roberta Williams. He heads Sierra and she created the innovative and popular, not to mention twee, *King's Quest* adventure series – as well as the most un-twee *Phantasmagoria*



3DO's stand was bustling with activity from the company's hardware licensees. Outstanding software was thin on the ground, though



An action-packed *Bladeforce* was one of the few 3DO games worth checking out

Attract mode

W*ipeout* is Psygnosis' launch title for the PlayStation. It currently looks like a sophisticated cross between the 3DO's *Crash 'n Burn* and Nintendo's *F-Zero*. If it can capture the structure of one and the playibility of the other, PlayStation early adopters will be in for a treat.



1 Opening scene: the viewer is transported into the control room, deep beneath the track. Droids glide around busying themselves with last-minute pre-race preparations



2 Cut to close-up. Sled schematics flash across a monitor screen and analytical data reflect off the droid's steely skin. On the lower panel, an outside camera relays its observations



3 Cut to exterior: an impressive aerial flyby sets the scene. The course wends its way through mountainous terrain, with futuristic constructions dominating the foreground



The FZ10's proposed M2 upgrade was present in solid plastic prototype form





No realtime demos were viewable but the final M2 chips were there (above, right)

$399 purchase – Trip Hawkins and The 3DO Company diverted public attention to M2. As revealed in **Edge** 22, M2 is a 64bit RISC upgrade based on the 602 PowerPC chip, reportedly capable of generating 700,000 texture-mapped polygons per second. It's planned to appear in two formats: an add-on box for existing 3DO owners and a standalone machine.

But with no announcement – or even guesstimates – about either a price or a release date for M2, 3DO's promises for the future have to be seen as little but a spoiling tactic to place a drag on PlayStation and Saturn sales. Ironically, 3DO is now making the same 'Just wait until next year' noises that it criticised Sega and Sony for less than 12 months ago.

In the absence of any real news, new 3DO peripherals commanded a disproportionate amount of attention. With prices starting at $22,000 (!), the X-O-TRON VR is probably beyond the means of most gamers, but it offers a unique form of 'exercise and entertainment' for health clubs or amusement parks. Three gyroscope-style hoops independently rotate a

Continued next page







Protoype models of 3DO's dedicated M2 players were shown during its M2 presentations. Panasonic's two systems were wildly different (far left, middle), while the rotund Goldstar model (above) paid compliments to the PlayStation



4 Close-up: starting grid. The sleds rise up through the track floor on their customised mountings. The soundtrack is punctuated by an incessant jabber of radio cross-talk



5 Extreme close-up as the red sled fires its rockets. The screen shakes as power surges through the frame. The flame quickly brightens to white hot as it reaches operating temperature



6 Cut to out-of-sled shot: the *Wipeout* track disappears into the distance. The engine whine has now changed to a barely suppressed rumble, drowning all other trackside noise



7 Close-up: green light! Exterior: ignition, followed by motion blur as the onboard camera tracks a rival further on. The first corner approaches at breakneck pace. Game on...



Atari was keen to show off a prototype Jag VR system but less keen to tell people that it was actually Virtuality's £10,000+ arcade set-up



Father and son team Jack and Sam Tramiel, taking Atari into the future with Jag VR

Continued

player suspended inside the contraption, which is hooked up to a 3DO game complete with stereoscopic headset. Those games of *Burning Soldier* will be so much better now…

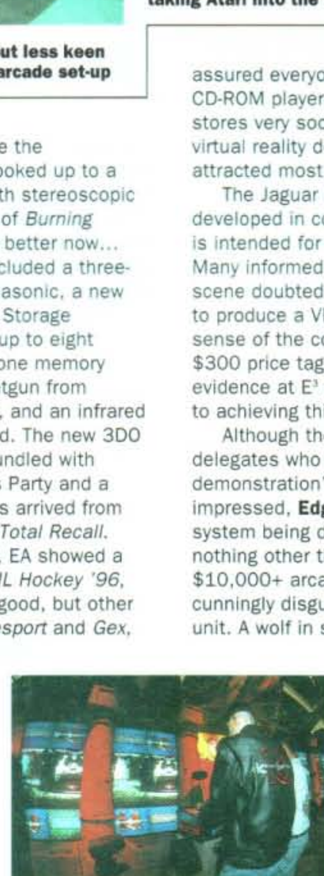
Other peripherals included a three-button mouse from Panasonic, a new FZ-10 controller, TDK's Storage Expander which allows up to eight games to be saved on one memory card, the GameGun lightgun from American Laser Games, and an infrared remote-controlled joypad. The new 3DO Control Pad 2 will be bundled with *Zhadnost: The People*'s Party and a $199 MPEG Module has arrived from Goldstar, bundled with *Total Recall*.

As for new software, EA showed a very early version of *NHL Hockey '96*, and *Bladeforce* looked good, but other games, including *Battlesport* and *Gex*, were disappointing.

While Atari announced a US price cut to $159.99 and assured everyone that the Jaguar CD-ROM player may actually reach the stores very soon, it was the Jaguar virtual reality demonstrations that attracted most E³ delegates.

The Jaguar VR system, being developed in conjunction with Virtuality, is intended for release this autumn. Many informed observers of the VR scene doubted that Atari would be able to produce a VR set-up – in the true sense of the concept – for its intended $300 price tag. And there was no evidence at E³ that Atari was any closer to achieving this goal.

Although the steady flow of delegates who tried an 'early working demonstration' came away exceedingly impressed, **Edge** learned that the system being demonstrated was nothing other than Virtuality's own $10,000+ arcade system not so cunningly disguised as the Jaguar VR unit. A wolf in sheep's clothing indeed, and reminiscent of 3DO's early attempts to fool CES punters into believing that a Macintosh Quadra demo was in fact the real REAL 3DO Multiplayer.



On the software side, *Fight For Life* looks much improved, but the lack of thirdparty support continues to leave doubt about Jaguar's credibility. Although Atari is confident that there will be approaching 100 Jaguar titles before the end of 1995, the quality of these games is still open to question. Perhaps Atari is focused too narrowly on doing the math and not on doing the quality. But still, Jeff Minter's *Defender 2000* is a game worth waiting for…



There was no sign of the ***Super Mario World*** **sequel,** ***Yoshi's Island*** **– NOA chose to delay it in favour of** ***DKC2*** **and** ***Killer Instinct*** **(inset)**

The Silicon Graphics team, house guests at Nintendo's sprawling →

Nintendo no go

Nintendo has announced that it is not going to attend next year's Winter CES in Las vegas. The decision not only puts the show's survival in doubt, but also places Nintendo's longterm plans under an already intense spotlight. By withdrawing from the show, Nintendo hopes to establish E³ as the single dominant show in the industry's calendar.

Of more immediate significance is what the move says about Nintendo's plans for the Ultra 64. Although it is rumoured that NIntendo is targeting Japan for a pre-Christmas release, it is unlikely that the company would press ahead with a second-/third-quarter US and European roll-out. With the Virtual Boy heading for stores soon and three huge SNES games well into development, it's not inconcevible that the Ultra 64 may not see these shores until autumn '96.

Data stream

Average household income of US Web user: **$59,600**
Proposed speed of NTT's next Fiber/ATM network: **10Gb/s**
Percentage of households with cable in Japan: **3-5**
Percentage of households with cable in US: **60**
Current number of wireless telephones worldwide: **25 million**
Number expected by 2000: **180 million**
Number of telephones for every 100 Americans: **99**
Number of times US fibre-optic cabling would stretch around world: **102**
Number of nodes on Usenet: **37,000**
Range of cordless TrackMan Live mouse: **30 feet**
Top-selling PC CD-ROM: ***BBC Gardeners World 3D Designer***
Average cross-format sales increase caused by half term: **35 per cent**
Retail price of Jaguar with no game in most shops: **£99**
Retail price of SNES with *Super Mario All Stars*: **£79**
Number of people in China who've had a vasectomy: **23 million**
Number of people electrocuted by live wires in UK homes during 1993 according to DTI: **2**
Number of people wounded by pieces of cheeese in 1993: **40**
And by pyjamas: **31**
And by falling off the toilet: **398**
Number of Saturns shipped in the US: **60,000**
Number of Saturns broken by the **Edge** team to date: **2**
Number of PlayStations broken by the **Edge** team to date: **1**
Number of years Shigeru Miyamoto has been working on *Super Mario World* sequel *Yoshi's Island*: **4**





A replica Batmobile dominated Acclaim's E3 stand but the accompanying batgirls proved more popular than *Batman Forever* and Probe's *Alien Trilogy* (above right)

→ show booths since the announcement of the SGI/Nintendo 'Project Reality' collaboration in 1993, were the people most obviously disappointed at Ultra 64's delay. SGI's engineers were keen to show off their creation to their competitors, but once again Nintendo kept Ultra 64 behind locked doors and away from the public eye.

The official line? 'We've decided to give our software developers additional time to maximise the power of this system in their game creation,' says Nintendo Of America chairman **Howard Lincoln**. The real reason? No-one's entirely sure. Software delays could well account for the lag, but with *Killer Instinct* and *Cruis'n USA* presumably having been completed months ago, and a host of promising thirdparty titles in the pipeline, a 1995 launch should at least be possible – if not ideal. And Nintendo should be wary of giving the competition too much of a head start.

Incidentally, Hiroshi Yamauchi, president of NCL, apparently hinted prior to the show that the Ultra Famicom (the Japanese U64) may well launch in December this year in Japan.

What was revealed at the show was a picture of the finished unit, with four joypad ports and a memory expansion port. Nintendo promises a revolutionary game controller, observing that the SNES joypad is intended to move characters around a 2D environment and that Ultra 64 is designed specifically as a 3D world generator.

Rare Ltd – recently on the business end of a 'multimillion dollar' deal in which Nintendo acquired 25 per cent of the company – was showing the two outstanding SNES games of the show – *Donkey Kong Country 2* and *Killer Instinct*. Otherwise, there were very few big SNES titles at E³, and the crude-looking *Earthbound* (aka *Mother 2*) from Nintendo was a bizarre inclusion.

The most recent addition to the list of official U64 game developers is Mindscape, which is working on *Monster Dunk* – a basketball game featuring Dracula and King Kong. In fact, for U64 it seems to be business as usual. Except, of course, that it's not actually here yet.

Virtual Boy was at E³, of course, and the quality of software had improved greatly since its last outing at the Las Vegas CES in January. It will be released on August 14, priced at $179.95. 'Virtual Boy is unlike anything currently available for the home,' says Nintendo's **Peter Main**. Well, he's not wrong there.

What is it?

The unofficial successor to the C64, this machine was a Commodore experiement that failed. it had an 8bit CPU and contained 64K RAM. It could display 128 colours onscreen and was sold with four programs stored on ROMs



Perhaps the strongest display of software at the show was on Scavenger's booth. PC and Saturn games pushed back the boundaries

Escom reveals the Amiga's future

The purchaser of Commodore announces its intentions

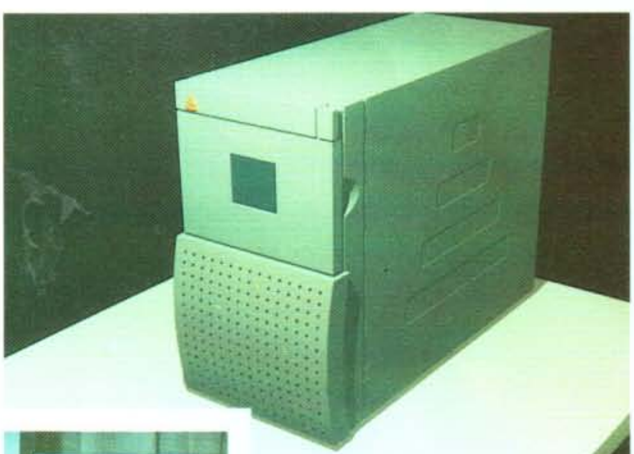
it is...

The Commodore Plus/4. This was the company's first attempt to break into the home office market. Unfortunately, it was let down by its software – the word processor could handle only 99 lines of text

Escom, the company which in April became the new owner of the Commodore brand (see **Edge** 22), held a press conference on May 30 to outline its strategy for the Commodore technology. **Edge** was among 60 representatives from distributors, hardware manufacturers, software publishers and the European press who attended the ParkHotel, Wiesenhuttenplatz, Frankfurt, to hear Escom's plans.

Escom is to separate Commodore and the Amiga, with Commodore branding the company's Pentium PCs and the Amiga falling under the control of Amiga Technologies GmbH, a new Escom subsidiary.

Petro Tyschtschenko, general manager of Amiga Technologies GmbH and former director of international material management and logistics for Commodore, provided details of Escom's ambitions for the Amiga. In the long term the firm sees it as the basis for high-end graphic workstations, home multimedia machines and set-top interactive TV units, but in the short term there are plenty of ideas for the existing Amiga range.





Two of the new machines displayed by Escom at its Frankfurt press conference: the sleek green A4000T (above) and a Commodore-branded PC in mock-up form



Over 60 representatives of European hardware manufacturers, press and distributors travelled to Frankfurt to attend Escom's conference

'We see in the Amiga the key to multimedia technologies of the future', stated **Manfred Schmitt**, founder and chairman of Escom. He also praised the machine's 'still unmatched multitasking ability' and claimed the firm had been inundated with messages of support from Amiga users.

Production of the top-of-the-range A4000T will commence in September, with Escom claiming that 20,000-30,000 have already been pre-sold into retail (Commodore International only ever produced 1000 of these powerful machines). Remodelled as a mini-tower with a minimalist light-green design, it's far more stylish than its previous →



Amiga A4000's running *Lightwave 3D* showed that the Amiga is alive, well, and still a machine to be reckoned with

Motion capture

Apologies to readers expecting to see the promised motion capture feature this month. In order to do justice to this complex and fascinating subject, Edge has decided to postpone the feature until next issue. Edge 24 is onsale July 27.



Manfred Schmitt, the founder and chairman of the bullish Escom

→ incarnation. A1200 production will also be restarted, with the first machines hitting stores in October, and the CD32 will follow in time for Christmas. Both machines will be restyled – not a moment too soon in the case of the CD32, although the dearth of CD32 software, original or otherwise, and the arrival of Sony and Sega's consoles must raise serious doubts about the system's survival.

Escom also revealed that every Amiga will now come with *Scala MM300*, a multimedia presentation program, bundled free in a further indication of its multimedia ambitions.

New Amigas are also promised, the first of which will be a 68030-based A1200 – the newly named A1300. As a result of Escom's close relationship with Motorola, the German company will be first in line for the new 68060 chips, which will be used in a new A4000. A new Amiga chipset is well into development, but Escom refused to release any details. Another Amiga-related development under consideration at Escom is a PowerPC version of the machine.



Escom intends to divorce the Commodore name from the Amiga brand and use the former for its range of Pentium-based PCs in Europe

And the Amiga is headed for a new market: China. The Tianjin Family-Used Multimedia Company, which currently has 80 per cent of the computer games sector in the People's Republic, will build its own low-end Amigas and Commodore 64s for the burgeoning Chinese home market.

Interestingly, there was no mention of David Pleasance, Colin Proudfoot and the Commodore UK team at the Frankfurt press conference. It's becoming increasingly clear that the Maidenhead-based outfit does not feature in Escom's plans.

Essential reading

Understanding Hypermedia



• **Bob Cotton and Richard Oliver**
• Phaidon, £19.99
ISBN 0-7148-2800-9

So what is hypermedia? Apparently it's the synthesis of images, text, animation, video and sound into a random-access program. Let's call a spade a spade: hypermedia is multimedia, and this is a survey and discussion of the past and future of multimedia and the nexus of terms and technologies it constitutes. Aesthetically and conceptually, *Understanding Hypermedia* positions itself as a companion volume to Phaidon's excellent *Cyberspace Lexicon*. But, sadly, it falls short on three important and interrelated counts.

Firstly, given the exponential rate of technological advance in the field, and notwithstanding the long production times in book publishing, this is so woefully out of date that it confidently trumpets the innovative virtues of products which were gathering moss even at the time of publication. CDTV anyone? *Lotus Turbo Challenge 2*? Secondly, as a work of reference it's of little use to anyone save cavemen and neophytes: repetitive, simplistic and alarmingly parochial (a discreditable number of the examples are drawn from the author's own, largely anonymous works in the area). Thirdly, it is a poor advertisement for itself. Designed to be like a hypermedia program, it embodies the worst sins of its fathers: all show and no go. Navigating Cape Horn on a lilo would be easier than this.

That's the bad news. The good news (though not £19.99's worth) is that the first two chapters are fairly stimulating. 'Media fusion: where technologies collide' starts by chasing out the strands that have ultimately converged with multimedia, and with the help of the handy 'chronofile' you can discover that, for example, between 1978 and 1979 the world gasped at the arrival of 64K chips, the Philips LaserDisc, the Walkman and the daisywheel printer. The authors then go on to identify some unlikely pioneers at the dawn of multimedia: Picasso (and the Cubists), Max Plank ('phase shift' physics), Vannevar Bush's Memex system of 'selection by association', and Morton Heilig's heroic failure, the Sensorama (a film booth that vibrated and blew smells at you in the interests of realism). We then wind up with a cursory look at the concept of bricolage, 'bringing together existing elements to create something new', and Nicolas Negroponte's theory of 'semantic compression'.

Big players show at **Tokyo** toy expo

This year, Omacha was once again *the* showcase for new videogames



The Japanese toy trade's annual bash is a shop window for the videogames industry

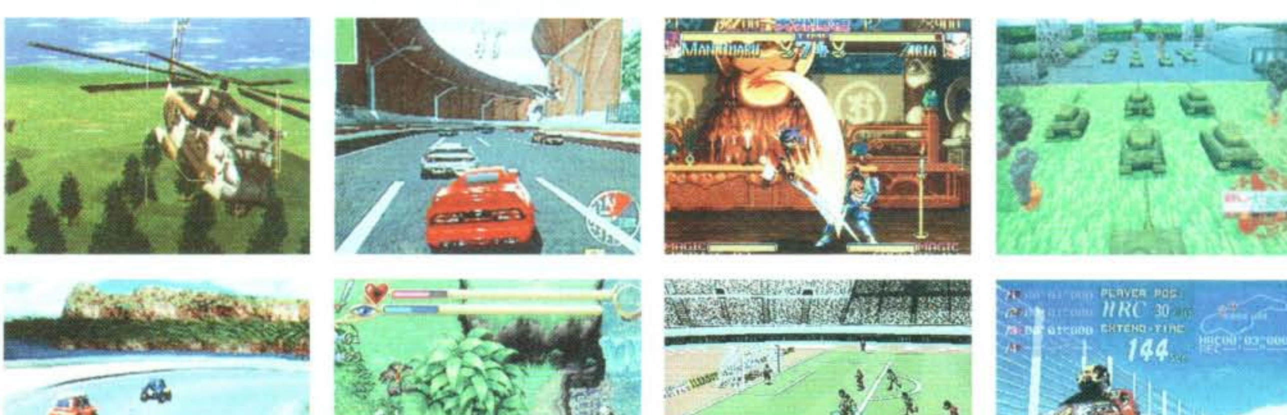
The annual Tokyo Toy Show (also known as the Omacha show) is the main event for Japanese toy sellers and manufacturers. Every year, the importance of the videogames sector increases; this time just about every major hardware and software company was represented (except for Nintendo, which stages the Shoshinkai show in November, and Konami, which was apparently unable to attend because of the Kobe earthquake).

Despite the lack of any major hardware announcements, a number of games attracted attention, chiefly *Virtua Fighter 2* on the Saturn, which was making its first public appearance in demo form and looked stunning (see pages 51-52 for more details). The Saturn also played host to sequels to *Clockwork Knight* and the Mega Drive action RPG *Legend Of Thor*, and several coin-op conversions showed up too: Sega's upgrade of *Hang On* (due in September) looks promising, with decent texture-mapped visuals; Time Warner's *Race Drivin'* adds texture mapping to its crusty (not to mention almost unplayable) Atari Games original; and Taito showed early versions of coin-op shoot 'em ups *Darius Gaiden* and *Ray Force*. Finally, there was *Guardian Heroes* on the Saturn, a fighting game with huge scalable sprites which looks like a standard Neo-Geo beat 'em up with RPG elements. →



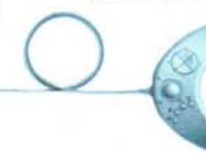


The main draw for gamers at the Tokyo Toy Show was an exceptionally smooth rolling demo of Saturn *Virtua Fighter 2*, developed by Sega's AM2 team



Selected software from the show (from top left, clockwise): a heli sim from Game Arts (Saturn); Taito's *Chase HQ*-style *Ray Tracer* (PlayStation); Hudson Soft's Neo-Geo debut, *Far East Of Eden* (a beat 'em up, no less); *World Advanced War* (Saturn); Takara's second PlayStation title, *Choro-Q*, featuring mini car racing; the sequel to *Legend Of Thor* (Saturn); Namco's PlayStation soccer game; and Sega's *Hang On GP '95* (Saturn)





→ The PlayStation countered with Taito duo *Ray Tracer* (a fighting man's *Ridge Racer*) and *Zeitgeist*, a *Starblade*-influenced shoot 'em up. *Street Fighter Real: Battle On Film*, Capcom USA's Saturn/PlayStation beat 'em up of the *Street Fighter* movie with digitised actors, was available for diehard *Street Fighter II* fans to try out, and also on show was Psygnosis' latest version of Capcom's *Vampire* (otherwise known as *Darkstalkers*).

As well as 32bit games, Capcom exhibited a healthy number of Super Famicom titles – among them *Mickey And Donald's Magical Adventure*, *Rockman X3* and *Final Fight 3* – but they were all derivative sequels to derivative sequels.





Bandai gave their remodelled Apple-derived Pippin its first outing at the show

Bandai took the opportunity to unveil its totally remodelled Pippin Power Player at the show. Such is the importance attached to Pippin by Bandai that a huge stand was devoted to the Apple Macintosh-based machine. The styling of the Pippin is now much more attractive than the plain black box and keyboard Bandai showed at Milia '95 in Cannes – and much more like a Mac. Indeed, anyone not aware of the Power Player's history would have been forgiven for assuming that Apple was bringing out a new Macintosh.

The basic Pippin unit, complete with CD-ROM drive, is designed to form the heart of a multimedia system to which a keyboard, modem, mouse and monitor can be added. Other Pippin peripherals include a joypad with a built-in trackball and a floppy-disk drive that fits underneath the base console.

Although the finished hardware was present, there was a distinct lack of quality software – none of the big developers had any Pippin games on display, and Bandai itself had nothing which showed what Pippin could do or indicated that the machine could reach beyond Apple's historically small games audience.



Capcom offered a range of predictable 32bit games and also kept the SFC flame alive with a host of sequels

Release schedules

Saturn

July 21	*Riglord Saga* (Sega) ¥5800
July 28	*Professional Baseball* (Konami) ¥5800
July	*Turning Ball World* (Tecno Soft)
	Hotblooded Family (Tecno Soft)
	Pepperouchau's Big Adventure (Sega) ¥4800
	Race Drivin' (TWI) ¥5800
	Twinbee Puzzle (Konami) ¥5800
August	*Magic Knight Ray Earth* (Sega) ¥4800

PlayStation

June 30	*Arc The Lad* (SCE) ¥5800
	Ace Combat (Namco) ¥5800
	Aquanaut's Holiday (Artdink)
June	*Rayman* (UBI Soft) ¥5800
	Mobile Soldier Gundam (Bandai)
July 14	*Professional Baseball* (Konami) ¥5800
July 21	*J-League Winning X1* (Konami) ¥5800
End July	*Night Striker* (Ving) ¥6400
	V-Tennis (Tonkin House)
	Philosoma (SCE) ¥5800
July	*King's Field 2* (From Software) ¥6300
August 25	*Zero Divide* (Zoom)
August	*In The Hunt* (Irem/Xing)

Sony vs Sega: the big push begins

The stakes are getting higher, and the two main console rivals are playing to win

First Japan, now America, tomorrow (or within weeks at any rate) the world. Sony and Sega's head-to-head has been a relatively sedate Japanese-only affair so far, but as the 32bit conflict gets set to go global, things are starting to become a little more intense.

The battle for American hearts and minds started early. Sega stole a march over Sony with its shock launch of the Saturn in the US on 10 May – nearly four months ahead of the September 2 'Saturnday' decoy date. The launch is only a limited (60,000 units) affair, but it does give Sega a head start in the USA. However, come September 9 it will have to face the PlayStation and a price difference of $100. The Saturn's price of $399 ($449 with *Virtua Fighter*) doesn't compare well with the PlayStation's $299 tag – and it's expected that the $299 PlayStation will be bundled with a game, possibly *Ridge Racer*.

The 32bit war is also hotting up in Japan. On July 21, Sony will introduce a new PlayStation – the SCPH 3000 – priced at ¥29,800 (£220). Designed as a 'popular' model, it lacks the S-video output of the original (therefore reducing production costs) but otherwise it's identical to the original.

But before the 'popular' PlayStation hits the streets, Sega's cheaper Saturn will be released. As of June 16, the Saturn will be onsale for just ¥34,800 – ¥10,000 less than the original launch price. Although still around £50 more expensive than the PlayStation, the new Saturn pack does come bundled with a (nearly) new game: the curiously low key *Virtua Fighter Remix*.

Potentially more significant than any of the price tinkering by Sony or Sega was the recent announcement of a longterm strategic alliance between Sony Computer Entertainment and Namco. As a result of the deal – estimated to be worth around $100 million – Namco has given SCE exclusive distribution rights to all its PlayStation software in Europe, and the arcade giant will continue to furnish Sony with PlayStation originals and conversions of its future coin-ops.





The celebratory 'one million sold' Saturn pack (above) comes with *VF Remix*. The US Saturn is already onsale (right)

Another brand-strengthening move from Sony is the PlayStation Club, due to start this September in Japan. For an annual fee of ¥5800 (£45), members will receive regular 'PlayStation Preview' 8cm black discs, featuring previews, playable demos and other news. Current Japanese PlayStation owners can apply for free preview discs for a limited period, 'to express thanks to those consumers who have purchased PlayStations in the last six months'.



Saturn shock

Just before Edge 23 went to press, news broke that the UK version of the Saturn would go onsale two months earlier than expected. A launch date of July 8 has been confirmed.

The machine will retail for £399, including *Virtua Fighter*. Three other games will be available on day one: *Clockwork Knight* (£40), *Daytona USA* (£50) and *International Victory Goal* (£45). *Panzer Dragoon* and *Pebble Beach* will ship two weeks later. At this stage it's not yet known if Sega have spent time adapting software to the 625-line PAL TV standard. More news next month.



***Virtua Fighter Remix* – same game but vastly improved visuals**



Letters

Express yourself in **Edge**. Write to: **Edge** letters, 30 Monmouth Street, Bath, Avon BA1 2BW

I would like to take this opportunity to reply to the anonymous letter printed in **Edge** last month about the PlayStation's technical abilities. Normally we would not wish to get involved in a heated debate but felt that the factual inaccuracies had to be corrected for the benefit of your readers.

1. 'The PlayStation incorporates "noddy algorithms" in hardware causing 3D problems.' The PlayStation includes a very powerful 3D math processor (the GTE) and a sophisticated graphics drawing engine (the GPU), which were designed by Sony to deliver the best performance at the lowest price. The PlayStation does not include perspective correction in its hardware as standard for reasons of cost – although this makes no difference to the quality or playability of games (witness *Wipeout*, *Destruction Derby*, *Tekken*, *Ridge Racer*, etc).

2. 'The Sony developer conference in January provided no extra information and Sony experts had little 3D experience.' Was the writer at the same conference? Sony Computer Entertainment R&D in Japan and Europe is staffed with some of the most experienced 3D programmers in the world. Staff have experience of such things as designing 3D graphics workstations, high-end 3D military simulators and 3D matrix chip design. The PlayStation drew upon Sony's 20-year history of making high-end digital processing systems for graphics and broadcast use.

3. '"Polygon folding" in PlayStation games is caused by bad clipping.' If very large polygons are drawn with certain types of texture map design, it is possible to see effects that are described as 'texture map distortion'. By carefully considering the design of 3D meshes and application of textures this effect can be eliminated. It has nothing to do with clipping.

4. 'More advanced PlayStation games will show polygon tearing.' This is simply not true. Second-generation software that is coming through from Japan (where developers have been working on the system for longer) shows huge leaps in technical performance, even compared to AA+ games like *Tekken*, *Wipeout* and *Ridge Racer*.

5. 'The PlayStation is limited to 16bit coordinate maths for 3D games.' True, but this is not a limiting factor. The PlayStation can transform sections of the 3D world at once in 16bit chunks, because 16bit 3D coordinate calculations give 32bit intermediate results. More accuracy is expensive.

At Sony Computer Entertainment Developer Support we deal with these issues on a daily basis. Even though the PlayStation is the most powerful home system available, the most important thing is the power and quality of the games, and SCE Developer Support is dedicated to helping companies to produce awesome hit software.

Allan Murphy,
Software engineer,
SCEE Developer Support



According to Allan Murphy from SCEE Developer Support, polygon games like *Wipeout* provide ample proof of the PlayStation's 3D credentials. And forthcoming software, he says, will be even more sophisticated...



Did the SNES's glory days end with classics like Nintendo's Super FX-boosted *Stunt Race FX*? (See letter from Lee Axon)

You seem to be ignoring the 32X. Why? It's not a bad little machine, considering that in some shops it retails for 120 quid. The games have been all right as well (bar a few, and we know which ones they are). Zyrinx has recently published pictures of demos it ran on a 32X, including all the texture mapping/gonad shaving stuff you always go on about, and (this is the important bit) Zyrinx itself said that these routines wouldn't run on the Sega Saturn without noticeable slowdown.

I admit that this machine is certainly not groundbreaking, nor will it ever be, but the point is that is resides in the more affordable end of the videogames market and if it survives the initial scepticism, the potential for technological development is enormous – compare the Mega Drive's *Altered Beast* with *Earthworm Jim* and you'll see what I mean.

Otherwise, great magazine. I love it and have every issue since the first, etc.

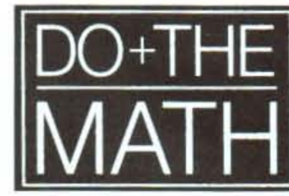
Richard Cross,
racross@pine.shu.ac.uk,
Sheffield

The Sega 32X is rapidly becoming one of the most spectacular failures in the videogames industry. Sales have been disappointing and most of the software that has been developed is lacklustre. Although Sega went to great lengths to stress that 32X was more than an interim product, developers haven't exactly been clamouring to write games for it, and the Saturn has overshadowed it in every respect. If more games are released for the 32X, and they represent a considerable step up from what is possible on the standard Mega Drive, then **Edge** will cover them.

Since its introduction to the world some four-and-a-half years ago, the Super Famicom has continued to amaze. What has impressed me most is the resourceful way in which Nintendo and thirdparties have overcome hardware hurdles in order to stay at the head of gaming. A DSP from Nintendo and Seta, the SFX chip from Argonaut and now the ACM from Rare. My main point is that, with effort, experience and back-up, companies like Rare are, quite rightly, showing us that 16bit needn't be dismissed just yet. Magazines such as *EGM* and *Gamefan* have been preaching next-gen for yearly two years, then wow! *DKC* hits us and they think, 'Hmm, 16bit… No, sod that, come on 32bit.' But then it happens again: Rare presents a 32-meg Super Famicom version of *Killer Instinct*. But I must ask, is there not a boundary where games developed for the Ultra 64 should appear only on that system to act as an incentive to upgrade, or should they be downgraded for SFC to act as Nintendo's last big push and to stay loyal to the millions of SFC owners? I regard the SFC and its software as the best that gaming has to offer. Roll on the present!

Lee Axon,
Newcastle-on-Tyne

Clearly, as Edge 22 pointed out, the SNES is being put out to grass far too early, especially as most of the best games on the system were produced relatively early in its lifetime. While *Killer Instinct* and *Donkey Kong* will no doubt sell in huge numbers, Nintendo's reputation for outstanding gameplay was founded on games like *Super Mario World*, *F-Zero*, *Pilotwings*, *Starwing*, *Stunt Race FX* and *Super Mario Kart* (all Shigeru Miyamoto titles, incidentally). According to legend, *DKC* was designed with the Ultra 64 in mind, and only later were the rendered graphics adapted for the SNES's palette and a superb 16bit graphics engine developed.



'Do the math' exhorts Atari's US advertising campaign. But does the company's own marketing strategy add up?

I think it is about time that Atari started to step up its Jaguar advertising. The Jaguar has been out for over a year now and all I have seen is a couple of advertisements in computer magazines. If Atari thinks this will sell the Jaguar in its thousands, it can think again. A few games have been released so far and the only one that has had an advertisement for itself is *Alien Vs Predator*. Atari should at least advertise most of the games that are already out. I walked into a computer shop the other day to find *Syndicate* and *Cannon Fodder* already on the shelves, but I saw no adverts to say they were out! In no way am I trying to give Atari a bad image, because I myself am an Atari fan. I have several Atari computers: XE, 7800, Lynx II and Jaguar. What I am trying to put across is, where is all the advertising for the Jaguar that Atari has promised us? What has it done with the millions it said would be used to advertise the Jaguar? If Atari is not careful, it will lose another great format. Is it forgetting that the Saturn and PlayStation are just around the corner?

Lee Chapman,
Melton Mowbray

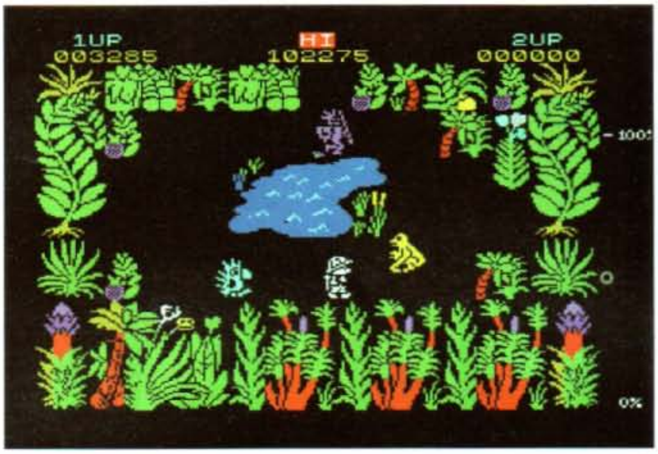
There has indeed been a lack of advertising for the Jaguar in the UK. **Edge** asked the company's UK marketing manager, Darryl Still, why the opportunity isn't being taken to boost the console's profile. This is his response: 'Television advertising is the single most expensive item

Continued next page



The 32X's power was evident in launch title *Virtua Racing Deluxe*, although it hardly represented a great leap over 16bit games. Richard Cross thinks Sega's 32bit add-on is worthy of more coverage in Edge

viewpoint



Have 8bit titles like *Sabrewulf* got more to offer than today's software? Bill Bulloch thinks modern games lack something – like gameplay

Continued

on most companies' agendas each year. It's very easy to advertise on TV; it's less easy to do so profitably. A single 30-second advert can cost £25,000, so you have to ensure that each one will sell enough product to be worthwhile.

'It is generally accepted that over 70 per cent of yearly sales occur in the last two months of the year and therefore a proportionate amount of the promotional budget should be concentrated into that period. Atari Europe plans to advertise Jaguar extensively on TV in this period. Historically, Atari has been advertising Jaguar on TV in America only. A European campaign has not been possible, as distribution of the product has been direct from the USA only, therefore no revenue has been coming into Atari Europe. We achieved full European distribution in March and have spent the months since then signing up most of the major retail outlets, so that when the market opens up after September, we'll be in a position to advertise to the masses in the knowledge that when they go in search of the product they've seen on their TV, they'll be able to easily find it.

'Software advertising in the games press has been carried out in order to raise the profile of the product to the enthusiast sector, which buys first. All of this is in line with other hardware companies – none of which have advertised on TV since December 24 last year! With reference to *Cannon Fodder* & *Syndicate*, these are published by Virgin and Ocean and not by Atari, but the Jaguar version featured in advertising for both these products.'

I have read in a lot of computer magazines about the glory days of the 8bit machines and how the standards set in the 1980s are rarely beaten by today's offerings. When I began gaming with an A500 *Batman* pack and *Xenon II*, I was very impressed with the graphics available and amazed at the apparent complexity and power of the games advertised in magazines.

Since then, I have been surprised to see how many 'new' games are in fact just re-hashes of original 8bit material. In these technically innovative '90s, where you can find the memory allocation of a VIC-20 on a credit card, how come super-powerful machines such as the Jaguar have to rely on games such as the seminal *Tempest 2000*? The answer came with the launch of *Head Over Heels* on the Amiga. Having had a try, I was genuinely delighted. Okay, the graphics were appalling compared to some of its contemporaries – eg *Lionheart* or *Project X* – but beneath it all was a certain something – perhaps even a lack of something – which left me feeling satisfied rather than exhausted.

It soon dawned on me that the difference was the fact that many modern games have such an 'in your face' approach to graphics and presentation that the essential fun aspect is absent. With this in mind, I began to experiment with 8bit games, first on a ZX emulator on my A1500 and then (after visiting a car boot sale and buying a Spectrum, a carrier bag full of games and a tape deck for £1!) with the real thing. After that, I was hooked. I began a crusade to recover as many of the classic 8bitters as I could find. As well as hunting down old Spectrum and C64 classics, I have an extensive list of older Amiga games.

Would it not be possible to covermount classic games like *The Sentinel*, *Virus*, *Parandroid*, etc, either on a specific retro-gaming magazine or as a second disk on one of the current ones? I have tried advertising for games, but to no avail. Do you know where I might lay my hands on a copy of Geoff Crammond's *The Sentinel*, for example? I gather from your Retroview that you have a copy. Would you be prepared to sell it? Would it be possible to get in touch with Geoff Crammond himself on the subject?

Bill Bulloch,
Skelmersdale

There may be widespread nostalgia for 8bit games, but **Edge** focuses on the future of videogames, not the past. And it's unlikely that a dedicated retrogaming mag would be commercially viable. Sorry, but **Edge**'s copy of *The Sentinel* isn't for sale.

Are the PlayStation and Saturn (at the equivalent of £290) really massmarket products? Since the yen seems unshakably strong against the pound and the dollar, what realistic chance do Sony and Sega have of establishing a global massmarket userbase?

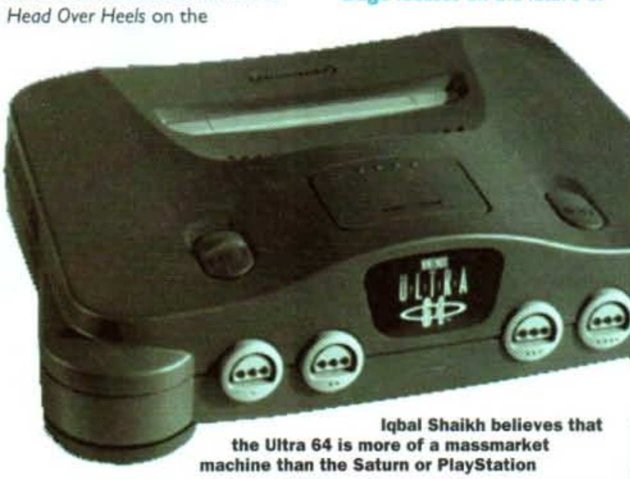
Sega should have stuck with the aborted Jupiter product, made it compatible with the Mega CD and scrapped Saturn and 32X. Impressive as the PlayStation is, Sony could have made it cartridge based for the equivalent of £100, with games at around the £50 mark.

When Nintendo's Ultra 64 finally arrives at $250 (£157) it will be competing directly with the 32X, Saturn and PlayStation. Although cartridge games are expensive, it just wouldn't make any commercial sense for Nintendo to price its software above the level of present SNES cartridges. It may also be worth pointing out that even *Virtua Fighter* on Saturn CD costs the equivalent of £50.

What game are Sega and Sony playing with the consumer?

Iqbal Shaikh,
Leicester

The pricing of both Saturn and PlayStation is directly related to the cost of their manufacture – although it's thought that both companies are taking a loss on each unit sold. The parameters that define an acceptable price are constantly changing. There is currently a perception that a games machine should cost between £100-£200, (but it's possible that polished, sophisticated arcade games such as *Ridge Racer* will draw in a wider, more affluent audience). Sony is about to reduce the price of the PlayStation to ¥29,800 in Japan (£220) and Sega's Saturn is already widely discounted to around ¥30,000. However, it's unlikely that initial UK prices will be this low – around £300 or above seems likely.



Iqbal Shaikh believes that the Ultra 64 is more of a massmarket machine than the Saturn or PlayStation

Prescreen

The first pictures of Nintendo's long-awaited successor to *Super Mario World* on the SFC, *Yoshi's Island*, arrived just in time for this month's Prescreen – but there's still no news about Mario's debut on U64.

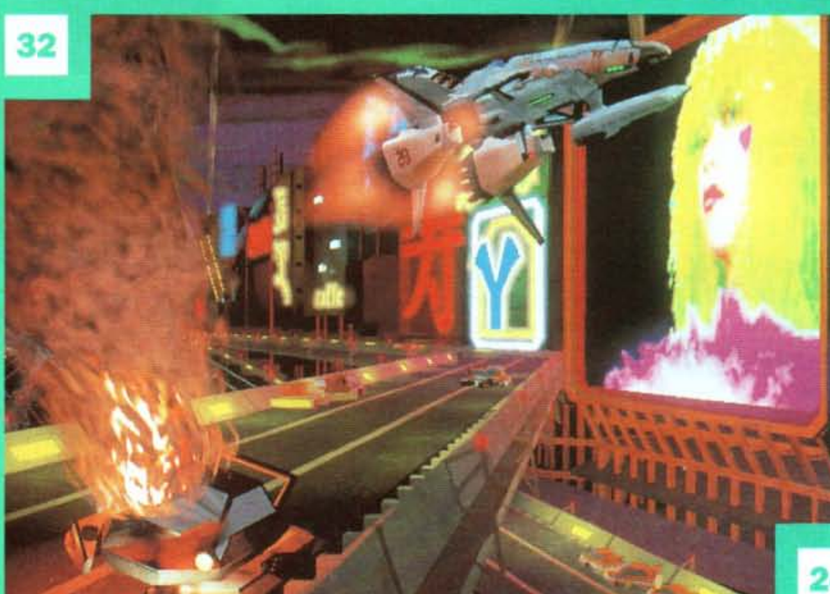
Also previewed: the ultra-violent follow-up to *Ecstatica*; the Bitmap Brothers' first PC original; and Crystal Dynamics' 3DO-derived *Solar Eclipse*.

Plus: five forthcoming PlayStation titles, including the latest versions of *Wipeout* and *Destruction Derby*.

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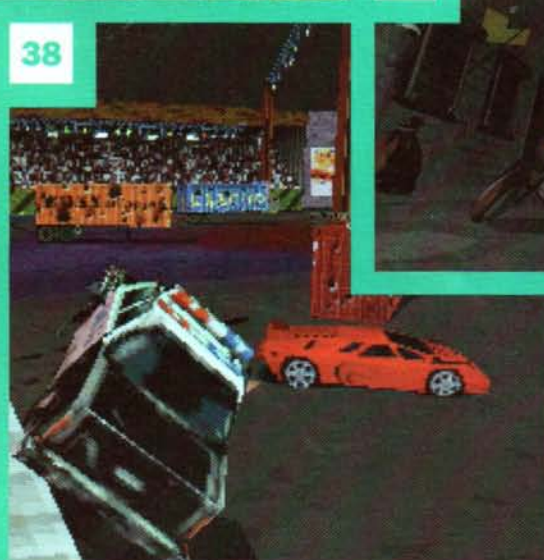
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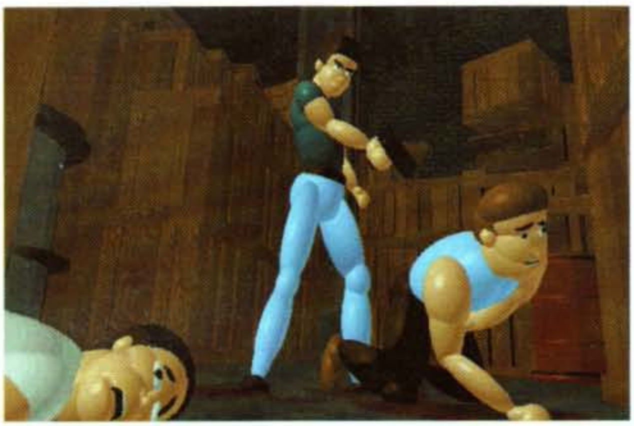


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Urban Decay

Realistic visuals, atmospheric environments, graphic violence… *Urban Decay* is just like last year's stunning *Ecstatica*, only more so



Gunning down miscreants in dark alleys is a satisfying experience. *Urban Decay* doesn't shy away from realistic depictions of death

Format:	**PC CD-ROM**
Publisher:	**Psygnosis**
Developer:	**A Spencer Studios**
Release date:	**Summer 1996**
Origin:	**UK**

Following the success of *Ecstatica* (**Edge** 13), **Andrew Spencer** is hard at work on its spiritual sequel, *Urban Decay*. The game uses the revolutionary ellipsoid engine that drove *Ecstatica* but transfers the action to a violent US ghetto at night.

'*Ecstatica* was just a testing ground for the system – we always had plans to take it further,' reveals Spencer. He has now established a dedicated game development studio and taken on several extra staff – there are five animators and a background artist working on the project.

The benefits are already apparent. When *Urban Decay* is complete, it will include over 2000 individual camera angles compared to *Ecstatica*'s 230. It also features SVGA graphics and an increased number of ellipsoids, which allows greater detail and realism – characters now smile and grimace, and their hands open and close when they grasp an object.

When Psygnosis presented *Urban Decay* at E³, the game's plot was still under discussion. 'It's gone out of the window since then,' admits Spencer. 'Although there will be speech, dialogue and plot, the emphasis will fall on the gameplay and action.'





The clever use of camera angles in *Urban Decay* could well make *Alone In The Dark* look relatively plain

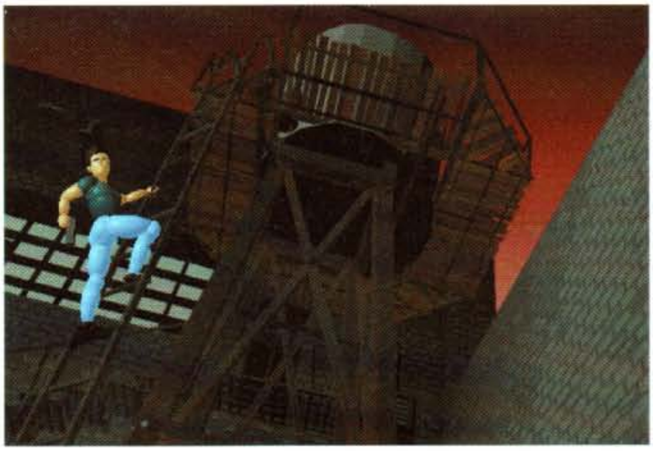


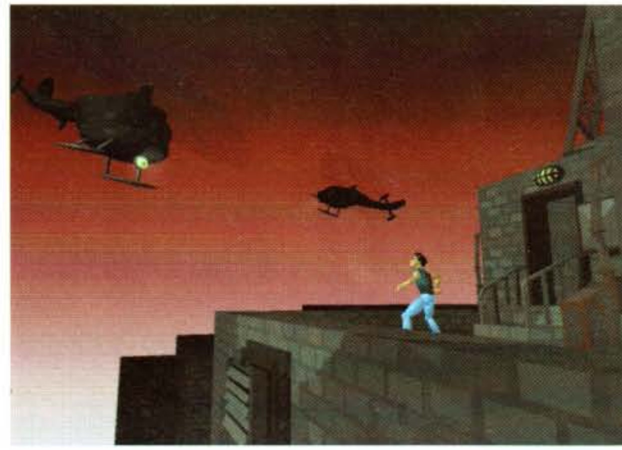


This foe is dispatched by kicking him off the gantry (top). Another attacker downed (above), this time with your trusty switchblade



There's no doubt that violence will constitute a major part of *Urban Decay*. The game will almost certainly receive an '18' certificate when it is released next summer









You scale an old water tower (top left), only to find a chopper-borne SWAT team waiting (top right). Jump off and then hang on for dear life





The number of ellipsoids used in *Urban Decay* is double *Ecstatica*'s count. The result in much greater realism

Ecstatica

For those not familiar with Andrew Spencer's previous game, *Ecstatica* is an unusual combination of interactivity and cinematic scenes. The player has freedom of action for the vast majority of the time, but certain events trigger set scenes. But unlike in most games, these sequences are not pre-rendered; instead, the geometry of the character's actions (for example, climbing a wall) is called up and then rendered in realtime. The secret of the game's success is that these intermissions are short, with the player losing control for no more than a few seconds.

Ecstatica's mixture of action and cinematic style distinguished it from ordinary adventures, but the game was criticised for being over too quickly. Spencer intends *Urban Decay* to avoid falling into this trap.

Although Alain Maindron (the sole artist on *Ecstatica*) has now parted company with the project, his gory legacy continues. 'There is blood in *Urban Decay*,' acknowledges Spencer, 'but it will be more underplayed. I'm not saying it won't be a violent game, because it will. Most people will play it as a violent game and enjoy that aspect of it. The appeal of *Reservoir Dogs* is interesting and in some ways comparable. In *Urban Decay* you're pressing the button to blow someone's head off. And everyone seems to like that, not just sick people. People just have pent-up aggression.'

Ultimately, though, violence begets violence and the player's actions inevitably return to haunt him. 'If the player acts like a complete psycho, he'll be treated like one,' says Spencer. In *Urban Decay*'s dark alleys, retribution comes in the form of rival gangs, SWAT teams and traps. However, that doesn't mean the game will turn into some kind of anti-violence morality tale.

Andrew Spencer is anxious to pursue his own path towards that elusive goal, the interactive movie. Rather than just present a series of pre-generated sequences, he's determined to take the best aspects of the film world and add the elements of control offered by videogames. From what **Edge** has seen so far, he's heading in the right direction. E

Mortal Kombat 3

Fresh from its successful arcade debut, the third game in Williams' beat 'em up series prepares to make its entrance on the PlayStation fighting scene













***Mortal Kombat 3* offers the usual range of atmospheric backgrounds and colourful characters**

Format:	**PlayStation**
Publisher:	**SCE**
Developer:	**Williams**
Release date:	**September**
Origin:	**US**

Fighting games don't come much bigger than *Street Fighter II* and *Mortal Kombat*. And, just as Capcom seems content to produce different versions of exactly the same game, the third incarnation of Williams' popular beat 'em up is distressingly similar to the first two *MK* games.

Nevertheless, the *MK3* coin-op has won almost every award possible at the shows at which it has been exhibited. Sony stepped in immediately after its release and snapped up exclusive rights to home versions for several months (although Atari sent out press releases



A beat 'em up wouldn't be complete without same character vs same character match-ups. Here, evil female Sandel takes on her alter ego








Kano gets a severe pasting at the hands of Kabal (above left). Unsurprisingly, the trademark *MK* bloodletting – one of the principal factors in the success of the series – is retained in the third game






The boxes at the bottom of the screen allow you to enter codes which reveal hidden features

also claiming that it had exclusive rights, its version won't be released until April next year). The result is that if you want to play *MK3* in the home first, you're just going to have to get yourself a PlayStation.

Such was Williams' confidence in the PlayStation's abilities that even before *MK3* was released in the arcades, it announced that it had a perfect home conversion in the works for Sony's console (although initial rumours that the coin-op would be built around PlayStation hardware have proved to be unfounded). Williams is handling the conversion itself to make sure that the Sony machine gets the best game possible.

'The PlayStation version will be the first one to be released and it's going to be awesome,' enthused **Ed Boon**, the man behind the arcade game. 'Everything from the coin-op will be there and it will look just as good.'

What this means is that you get 24 fighters (14 standard and 10 hidden), each of which has stunning new moves. All the characters from the first two games are here, plus a whole load of new ones, ranging from a devilish half-man, half-horse creature to a four-armed she-Goro.

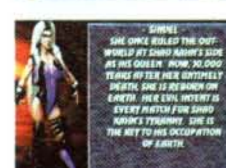
While *Mortal Kombat 3* esssentially retains the 2D environments of its forebears, some work has gone into making the backgrounds interactive. On the subway level, for example, you can uppercut your opponent through the roof and jump up to follow them. Or you can simply punch them onto the railway tracks and wait for the inevitable to happen.

Because the PlayStation game has been developed alongside the coin-op, it is set to hit the streets in September (a 60%-complete version was recently exhibited at E³). It's little coincidence that this is also when the PlayStation will be launched in the US and Europe. Whether *MK3* will come bundled with Sony's machine is still unconfirmed.

Williams' decision to build on the traditional beat 'em up style and stick with conventional sprites and parallax backgrounds is puzzling, given the resounding success of the polygon-generated *Virtua Fighter* and *Tekken*. Indeed, compared to both Sega's and Namco's games, *Mortal Kombat 3* looks dated.

Of course, *Mortal Kombat* has never relied on state-of-the-art graphics technology but on lashings of gore and good, old-fashioned *SFII*-style playability. On this count at least, it should succeed.





A potted biography is supplied for each of the ***Mortal Kombat 3*** characters, and they're as ludicrous as ever

Wipeout

Just as *F-Zero* was one of the first titles to show what the SFC could do, Psygnosis' futuristic racer could win converts for the PlayStation

In terms of graphics, *Wipeout* certainly does the business, with visuals that are arguably better even than *Ridge Racer*'s

Format:	**PlayStation**
Publisher:	**Psygnosis**
Developer:	**In-house**
Release date:	**September**
Origin:	**UK**











A missile streaks down the track (top). *Wipeout* draws well into the distance (middle). '70s camera angles (bottom)

Wipeout is one of the games spearheading Psygnosis' autumn assault on the UK PlayStation market (the company is aiming for a September 9 release). Since **Edge** last looked at the racing shoot 'em up (issue 21), its graphics engine has been improved and the gameplay has undergone final tuning.

In terms of graphics, *Wipeout* certainly does the business, with visuals that are arguably better even than *Ridge Racer*'s. Although both games run at around the same speed, *Wipeout* is more glitch-free (having obviously benefited from its longer development period) and also boasts a wide variety of scenery, even within a single course.

Blasting through tunnels and plunging over precipices is exhilarating in itself – Psygnosis has perfected the craft's physics so their inertia and acceleration feel just right – but the experience is intensified by rival racers laying mines in front of you.

Wipeout's only potential problem is longevity. Although short-term thrills are guaranteed, some extra depth will be needed to make the game a satisfying challenge. **E**



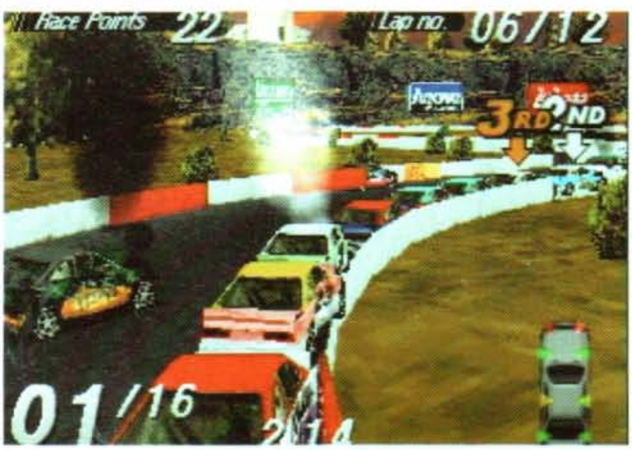


A spectacular bridge leads to a jump (top left). The design of the craft – especially the texturing – is superb (above and left). The superbly lit and detailed tunnels are slightly reminiscent of *Ridge Racer* (bottom left)

Destruction Derby

Format:	**Playstation**
Publisher:	**Psygnosis**
Developer:	**Reflections**
Release:	**October**
Origin:	**UK**

In most racers, crashing is an occupational hazard. But in *Destruction Derby*, it's the whole point of the game...









An impressive traffic jam (top). Realtime deformations (middle). The city streets at night (bottom)

Destruction Derby is the new name for *Demolish 'em Derby*, the hectic racing bash 'em up first featured in **Edge** 20. Together with *Wipeout* (see opposite page), it forms part of Psygnosis' high-powered software strategy for the UK launch of the PlayStation.

Seven tracks are now in place, including a night-time city drive and an oceanside course. There are also figure-of-eight and bowl tracks, which offer significantly increased potential for buckled metal – especially in link-up mode, when things take on the character of a particularly vindictive game of dodgems.

But perhaps the most spectacular recent addition to the game is an action replay mode. At the end of each race you're given the option to edit the drive and produce your own mini-movie. You select camera angles and shot lengths and the program transforms your amateurish directorial efforts into something respectably artistic. This will add an important extra dimension to the finished game – although it doesn't look like it needs one.







The oval arena is the least subtle course (top). Extra points are gained for spectacular crashes (middle). Your car won't stay this pristine for long (above)

Philosoma

Format:	**PlayStation**
Publisher:	**SCE**
Developer:	**In-house**
Release date:	**July (Japan)**
Origin:	**Japan**

Sony's only notable contribution to PlayStation software so far is the superb but short-lived *Jumping Flash*. Will its new blaster make the grade?







***Philosoma*'s intro sequence (development on which was started over a year ago) follows the alien aggressors' invasion of the peaceful space colony. It's rich in colour and highly impressive**

With consoles like the PlayStation offering unprecedented power and versatility, many developers are finding themselves caught in a dilemma when it comes to updating existing game styles. Do they totally reinvent a genre, in the way that *Jumping Flash* dragged a flagging theme into the mid-1990s? Or, with all the extra processing muscle at their disposal, do they strive to recreate existing coin-ops almost to the letter, à la *Raiden Project*?

Sony Computer Entertainment obviously subscribes to both philosophies, because *Philosoma* does it all, offering both classically styled horizontally and vertically scrolling sections *and* some very impressive 3D.

The game takes place on a planet called ORA-194-220, where a colonial installation has been attacked by an alien species – the *Philosoma* of the title. As Team 29, the only group in the vicinity equipped to intervene, you respond to an SOS signal and embark upon a clean-up operation.

Philosoma is an unashamed shoot 'em up, but its extravagant presentation and numerous extras make it feel like no other game of its genre. Although play conforms to the classic attack waves/mini-boss/attack waves/boss format, each level adopts one of three viewpoints, and the transition between different styles of level is effected via cinematic pre-rendered sequences which seamlessly cut away from your craft and swing around it before settling on the next view.



The game's intro includes strong scene-setting visuals and impressive sound









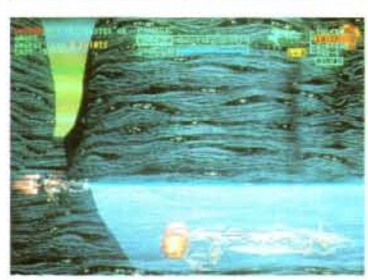

The most original aspect of *Philosoma* is the way it switches from one perspective to another (there are three in all) as the levels progress. As well as side-on levels (complete with stunning parallax), there are vertical and 3D sections



The vertical sections are packed with detailed animations, but the 3D sequences are even more striking – a good example is the tunnel section, which culminates in a smooth-scaling guardian (above right)







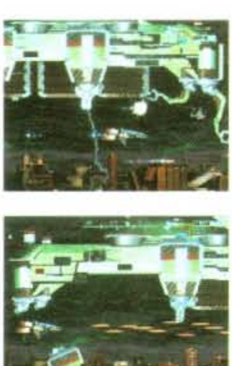
The vertical and horizontal sections feature the usual selection of end-of-level bosses. Hopefully, the same old tactics won't work

The PlayStation can handle subtle effects like transparency (as shown by your ship's laser) in hardware

Taking its cue from Konami's influential Super Famicom blaster *Axelay*, *Philosoma* offers four switchable weapons: Vulcan, Laser, A-Break and Rav-B, each of which has its own strength and range. Supplementing these standard arms are collectables such as homing missiles, which, ideally, should be stockpiled for end-of-level encounters.

During play, a valuable status panel reveals your energy reserves. It also provides brief damage reports (highlighting the afflicted area of your craft), informs you of the status of your 'sub-system' (a device which controls your camouflaging ability), and offers some sketchy advice about fighting strategies.

Philosoma is one of the most long-awaited games for the PlayStation – it was unveiled (in the form of pre-rendered animated sequences) when Sony announced the existence of the machine. Now, with frenetic vertical scroller *Raiden Project* the only blaster to receive any critical acclaim, *Philosoma* has an obvious gap in the market to fill. Its combination of varied playing styles, relentlessly impressive graphics and sound gameplay could well see it plug that hole convincingly.

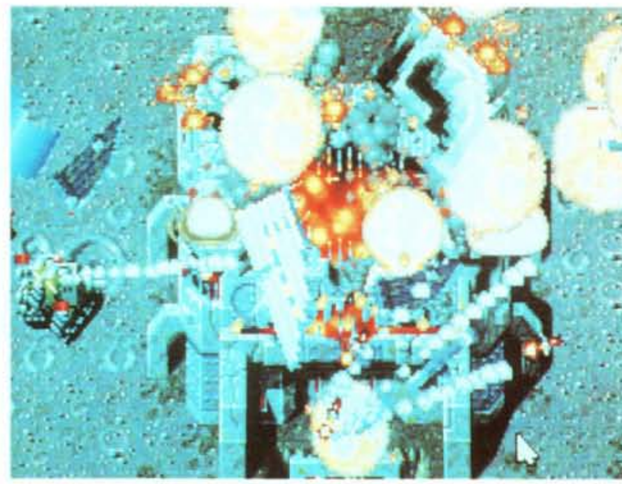


The fullscreen bosses scale smoothly into view before unleashing their attack arsenal

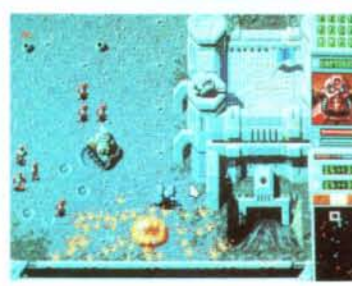
Z

Three years in the making, the first dedicated PC title from cult Amiga coders The Bitmap Brothers looks likely to be the last word in action-strategy games





Format:	**PC CD-ROM**
Publisher:	**Time Warner**
Developer:	**Bitmap Bros**
Release date:	**September**
Origin:	**UK**



An opponent's base is blown sky-high – your mission is accomplished (top). Direct your fearless red robots to storm an enemy stronghold (above)



This factory hasn't long to last. Heavy guns are slow but very effective – make your own or take one by force by shooting out the enemy driver

When the creators of *The Chaos Engine*, *Gods* and *Speedball* produce a new game, people sit up and take notice. *Z* is the maiden PC title from programming legends the Bitmap Brothers. **Edge** spoke to designer **Eric Matthews** about what could be the team's best work yet.

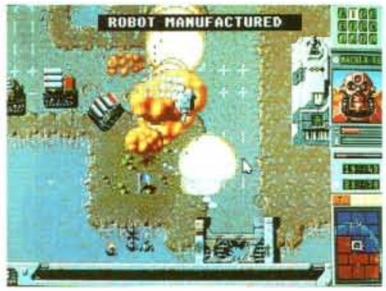
Z is a no-punches-pulled, all-guns-blazing action-strategy game which places you in charge of an army of lazy, cigarette-smoking, lager-lout robot soldiers. The entertaining intro and between-level cut-scenes introduce 'Brad and Alan', two Bill and Ted-esque robots hounded by their gung-ho commander, General Zod.

The object of the game, which is spread across 20 levels on five planets, is to defeat the enemy blue team and capture their fort. 'What we wanted to create was an action game,' explains Eric. 'Games like *Dune II* are okay, but much of them is spent preparing for battle and the action only comes later. We wanted to put a player straight into the action. Just point, click, and you're off.'



Clicking on a unit of soldiers and then clicking elsewhere moves them to a new position. Your goal is to win unoccupied terrain by capturing its flag. The enemy has similar land-grabbing intentions, and inevitably paths cross and friction results. Unlike in *Syndicate*, these chaps possess some common sense – if someone fires at them they're damn well going to fire back. Your intervention isn't required unless you decide to withdraw them or single out a particular target.

The action takes on a frantic *Lemmings*-like character as you chase around the map giving orders. As with *Lemmings*, there is a set way of completing a level. But, cautions Eric, 'You may follow one course of action to win, while another player may find a much easier way, and you'll go, "Ahhh," and learn for next time.'





No sooner is hardware built than a devious enemy turns it to scrap (above left). Tough Rob gives you the thumbs up before he trundles off into battle (above)

Each battle results in a pyrotechnic display as opposing sides loose off powerful hardware in each other's direction. Additional weapons are either 'found' lying unclaimed around the battlefield or manufactured in one of the factories up for grabs. Once in a team's possession, these factories begin churning out goodies for their owner's use – like some new robots, for example, from a selection ranging from the basic 'Grunt' model to the super-accurate 'Sniper'. Larger factories offer a wider choice of goods – such as Jeeps, tanks, troop carriers and assorted heavy guns. A clock on their roof counts down the time remaining before you can take delivery of your hardware.



Captured territory increases a player's resources, resulting in faster production. 'Because of this need to occupy territories, you can't play defensively, just guarding your fort,' Eric points out. 'You've got to get out there.'

Deciding what to make and when to make it is crucial. The enemy may choose to manufacture Grunts in his factories, taking a couple of minutes each, while you may opt for a long-range rocket launcher – some five minutes to make. As you're waiting, he may overrun you with his freshly made troops, capturing your factory just as the new hardware rolls of the production line – in his colours.

Landscapes vary from planet to planet. The first planet has a desert theme, while later ones feature jungles, volcanic regions with impassable lava flows and arctic areas where heavy vehicles crash through thin ice. 'In one level you can hide your troops under water by a roadside, and when the enemy walks by you can pop up and let 'em have it!' enthuses Eric.

This interaction with your surroundings – being able to destroy bridges, or take short-cuts through rock formations by blowing them up instead of walking around, is one of *Z*'s outstanding features. This isn't mindless destruction, though: the action/strategy trade-off is just right and there's usually a good reason to blow things into a million pieces.

With the game currently undergoing 'fine tuning' and the addition of a fourplayer link-up mode, it can only get better before its September release.



General Zod crops up after each level to give you either praise or criticism, depending on your performance





Z is basically a game about blowing things up. You never tire of razing an enemy's headquarters – or his latest piece of fresh-off-the-production-line hardware – to the ground with a spectacular rocket-induced firework display

Twisted Metal

New developer Singletrac's debut is a PlayStation combat driving game with a powerful engine under its bonnet





These great-looking exterior views might not be ideal for play

Format:	**PlayStation; PC CD-ROM**
Publisher:	**Sony Imagesoft**
Developer:	**Singletrac**
Release date:	**Late 1995**
Origin:	**US**

With a scenario and graphical environment similar to Gametek's *Doom*-inspired PC driving game *Quarantine*, there's nothing about *Twisted Metal* that screams innovation. But as one of the first titles from Singletrac, a firm founded by former employees of graphics pioneer Evans & Sutherland, it merits some attention.

Set in a smog-filled, crime-ridden southern California of the future, *Twisted Metal* has five different 3D worlds and 12 enemy vehicles to take on – described by the developers as 'high-tech, state-of-the-art, sinister and deadly' but looking remarkably like a chequered cab, an old ice-cream van, a truck rig, a police car and a few other ageing American icons.

There are three exterior views in addition to the basic driver's-eye perspective: behind the car, rear three-quarters and blimp. There's also a head-to-head link-up option and a full range of *Doom*-esque weapons, including missile launchers, flame throwers and machine guns. Unlike *Quarantine*, which had an exploration and adventure slant, this is a straightforward arcade battle to the death – you progress seamlessly from area to area and your only object is to destroy enemy vehicles.

Twisted Metal looks much more like a PC title than a PlayStation one – it's far less tightly structured than pure driving games like *Ridge Racer*. However, the multiplayer option should make it one of the better US releases this year.







***Twisted Metal* welcomes careful drivers, but it looks like it's more fun to aim your vehicle straight at the opposition with all guns blazing**

There's a full range of *Doom*-esque weapons, including missile launchers, flame throwers and machine guns



A yellow-checked cab – one of the 12 vehicles available in *Twisted Metal* – leaps across roadworks in a run-down California of the future

Solar Eclipse

After investing solely in 3DO development, Crystal Dynamics is now heading for pastures new











As usual, Crystal Dynamics is spending a great deal of time on the pre-rendered intro

Format:	**Saturn**
Publisher:	**BMG**
Developer:	**Crystal Dynamics**
Release date:	**TBA**

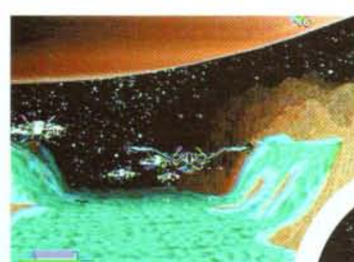
Seduced by the power and sales potential of the Japanese consoles, Crystal Dynamics has ventured outside its monogamous relationship with the 3DO. The first evidence of its shifting allegiances is *Solar Eclipse*, which will be released on both the Saturn and PlayStation.

In terms of structure and gameplay, *Solar Eclipse* is best described as an enhanced version of the 3DO blaster *Total Eclipse*. Plot-wise, though, it's more like a prequel, with the player having to destroy a renegade computer called The Grid. The action features Crystal's now familiar highly coloured, smoothly scrolling multi-level terrain, seen in *Total Eclipse* and *Off World Interceptor*. The Saturn's extra power should enable additional effects to be added and the frame rate to be upped.

Sandwiching the action sequences are *Shock Wave*-style cinematics, used to develop the plot. It's hardly original, but Crystal Dynamics' slick presentation should ensure that the 40 minutes of pre-rendered footage is highly polished (if uninteractive).

With the Saturn now on the streets in the United States, both Sega and Crystal Dynamics need an early, visually attractive title to persuade customers to part with their cash. But is *Solar Eclipse* really the game for the job?





Spectacular explosions (above) combine with smooth-scrolling terrain (left) to produce some impressive visuals





Action-packed scenes like this (above) reveal Crystal Dynamics' attempts to achieve the same level of excitement that characterised *Total Eclipse* and *Off World Interceptor* on the 3DO

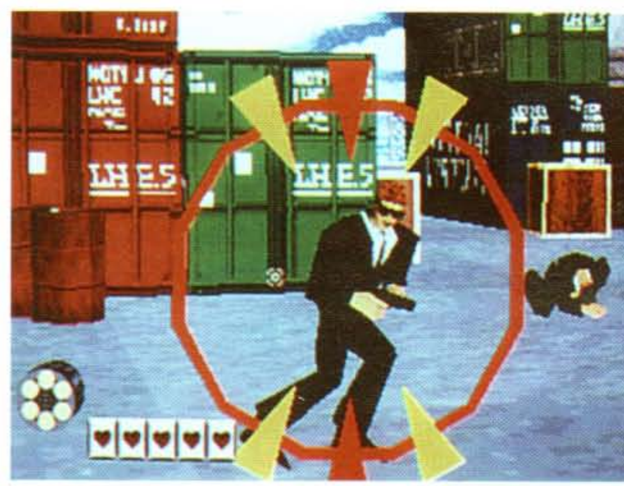
Virtua Cop



Close-up, the detail in both ***Virtua Cop***'s backgrounds and characters is impressive. Sega is set to release a Saturn lightgun for use with ***Virtua Cop*** in time for the game's launch

AM2 converts its gun-toting coin-op for the Saturn, but will the simplistic gameplay cut it in the home market?

Format:	**Saturn**
Publisher:	**Sega**
Developer:	**AM2**
Release date:	**TBA**
Origin:	**Japan**





Most of level one in ***Virtua Cop*** seems to be populated by extras from the cast of ***Reservoir Dogs***







The Saturn conversion of ***Virtua Cop*** will retain the coin-op's levels and characters

Sega's last-but-one *Virtua* title gave the gun-game genre the 3D polygon treatment but left the gameplay firmly in the mode of *Lethal Enforcers, Mad Dog McCree* and *Operation Wolf.* The two-gun arcade machine certainly retained the high graphical standards of the previous *Virtua* games, and the Saturn conversion in development looks as faithful as that of *Virtua Fighter.*

Although Saturn *Virtua Cop* is only 20% complete, almost all the polygon data models for the levels and the first-level characters are finished. In these shots, 70-80% of the textures have been applied to characters' bodies and faces and, like *Virtua Fighter* and *Daytona,* logos and other details have been mapped onto the backgrounds.

The first level of the version shown here would be fully playable were it not for the fact that it's missing its boss character. The main problem facing developer AM2 right now is speed – the game suffers from slowdown at several points. However, AM2 is promising that the Saturn conversion will feature the same number of enemies as the coin-op.

What AM2 and Sega can't promise is anything more substantial than a few hours' target practice. A lightgun is planned for release at the same time as the game, but the add-on only raises another question about *Virtua Cop*'s value for money. Even the best of this sort of coin-op translates badly to the home, and *Virtua Cop* is unlikely to draw the crowds that Sega needs to attract to the Saturn. E

Yoshi's Island

With Ultra 64 still some way off, Nintendo's not giving up on 16bit just yet. Mario returns to the SFC for more classic platform action



A giant Babapapa-style monster attacks Yoshi. Note the dinky baby Mario (in an oversized cap) perched on his back, lobbing spotty eggs

Format:	**SFC**
Publisher:	**Nintendo**
Developer:	**In-house**
Release date:	**Aug 10 (Jap)**
Origin:	**Japan**





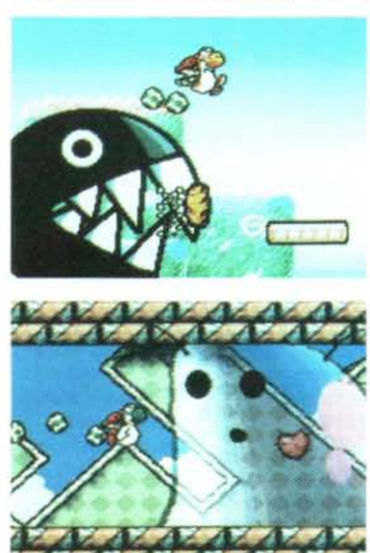
Secret areas, underwater levels and big bosses are typical Miyamoto hallmarks

While everyone holds out for Mario's outing on the Ultra 64, Nintendo has been secretly preparing a second adventure for the Super Famicom. *Yoshi's Island* (which was curiously absent from E³) packs a Super FX chip and will be available in mid-August in Japan.

The plot is typically twee. Baby Mario and Luigi have been kidnapped by Koopa's wizard, Kamecku, from a stork carrying them to their parents' house. Yoshi manages to rescue Mario and then sets out to locate Luigi.

The game looks and feels very similar to *Super Mario World*, with the wealth of deep play mechanics seemingly intact. Your main weapons are eggs which Mario throws from Yoshi's back, and power-ups are also available which transform Yoshi, enabling him to reach secret areas in the four multiple-stage worlds.

Great things are expected from *Yoshi's Island*, although it's possible it will be the last SFC game from Shigeru Miyamoto. Shame...



The bold and colourful graphics are close to *Super Mario World*'s, but the Super FX chip could rev things up

***Yoshi's Island* looks and feels very similar to *Super Mario World*, with the wealth off deep play mechanics seemingly intact**

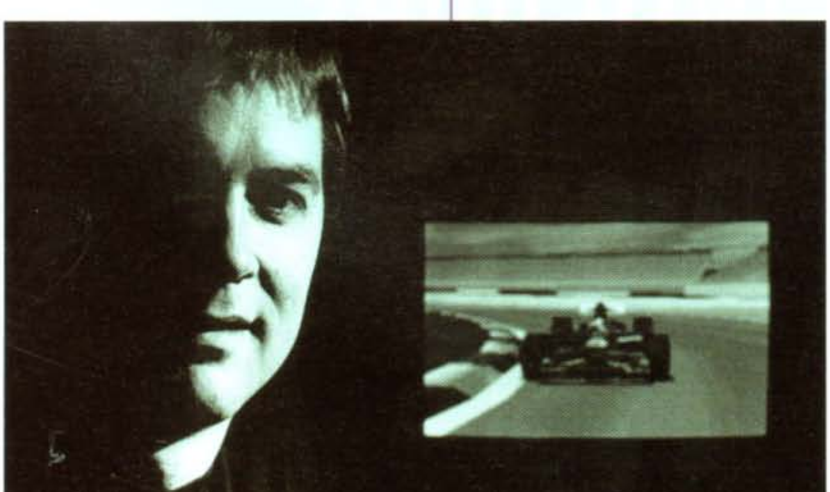




Formula One
Grand Prix 2



He's the man who created *Revs*, *The Sentinel* and *Stunt Car Racer*. Now renowned game designer Geoff Crammond is putting the finishing touches to his latest opus, a PC sequel to the groundbreaking *Formula One Grand Prix*. **Edge** tracks him down



Format:	**PC CD-ROM**
Publisher:	**Microprose**
Developer:	**Geoff Crammond**
Release date:	**Autumn**

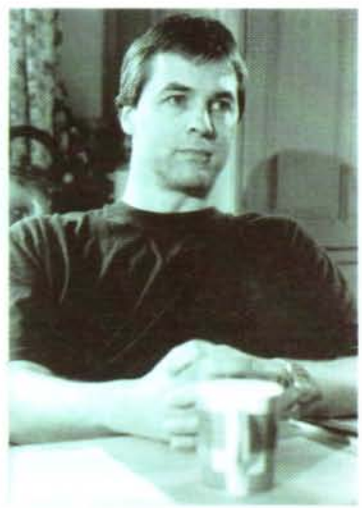
Geoff Crammond is one of the few game designers whose products are still played years after their release. Ever since he roared onto the scene in 1985 with the first ever serious racing game, *Revs*, each of his titles has attained almost mythical status. *The Sentinel* (1986) is regarded as one of the greatest strategy games of all time, and *Stunt Car Racer* (1988) is still a joy to play.

But most people immediately associate Geoff Crammond with *Formula One Grand Prix*. The 1991 Amiga game established a racing benchmark that has yet to be surpassed, and its authenticity and smoothness has rightly made it a classic that is played on the PC even today. With its sequel, *F1GP2*, gearing up for a September roll-out, **Edge** cornered the normally reclusive Geoff Crammond for a rare interview.

'The main thing that *F1GP2* needed was a graphical upgrade,' admits Crammond. 'The PC version of *F1GP* was a slightly enhanced version of the Amiga and ST games and there wasn't time to go into a whole load of texturing. If I had, it would have meant the game not appearing for another couple of years.'

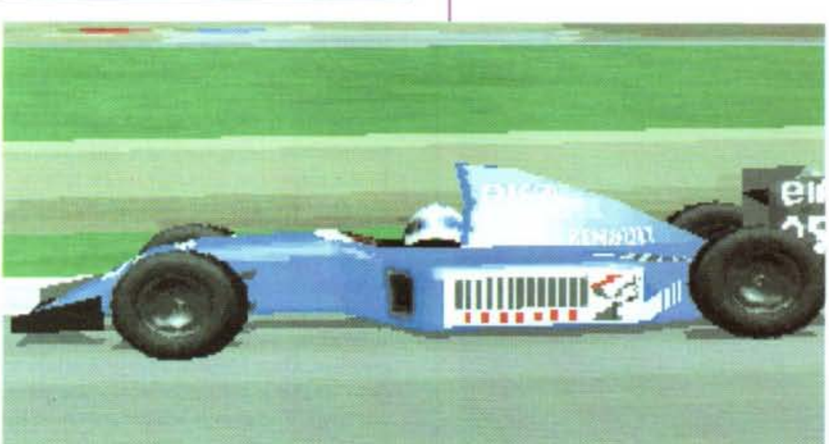


The sheer amount of textures being shunted around the screen is a testament to the power of *F1GP2*'s graphics engine





A McLaren rounds a corner (above). The realtime lighting routines – like paintwork glinting in the sun (below) – are stunning



_F1GP_'s authenticity and smoothness has made it a classic that is still played on the PC today

And the most noticeable aspect of the sequel is its uprated visuals. When it's running at maximum detail, *F1GP2* employs comprehensive texture mapping and highly realistic light sourcing. It's no exaggeration to say that the effects – such as the sun glinting off the cars' bodywork – are among the most impressive ever seen on the PC, but it's the texturing in *F1GP2* (some of which is anti-aliased to avoid 'twinking') that really marks the game out as something special.

'The acquisition of textures is a separate problem to creating a good engine to display them,' explains Crammond. 'And there are different requirements when considering which textures to use – how much perspective will be involved, how much macro and micro detail is required, and so on. My brother-in-law, Norman Surplus, does the tracks and he recently visited Monaco to obtain the textures.'

A choice of resolutions will be available in the final game, with SVGA on offer to those with high-end machines. The game runs in 320x200 resolution on a fast Pentium, with 256 colours at over 20 frames a second, making everything run exceptionally smoothly.

When Crammond started work on *F1GP2*, a 386-based PC was a high-end model. However, now Pentiums are becoming the norm. 'The hardware has kept pace with my algorithms,' he laughs. 'In terms of sheer processor workload, the lighting algorithms add a little but the sheer

Continued next page

Continued

amount of texturing is the greatest slowing factor. There's so much to do for every pixel and there are so many pixels. Although the simulator is complex and is doing a hell of a lot, the time it takes compared to the graphics is insignificant.'

In order to achieve the speed and detail required, Crammond uses a pure 100% assembler engine. He rejects claims that assembler is slow or awkward to work with: 'I'm quite comfortable working with assembler. You can make it semi-high level using macros and it means you've got full control. Most importantly, because *F1GP2* started its life as *F1GP*, which already had a pure assembler engine, there wasn't the time to convert all or part of it to C. That would have taken another six months. But there may come a point where we look at converting at least parts of it to C so that conversion to other platforms is easier.'

Beneath *F1GP2*'s sophisticated graphics engine lies a complex and remarkably accurate simulator. The original *F1GP* was praised for its realism (there were even rumours that Michael Schumacher used it to learn tracks), but the sequel is even more impressive. Crammond has painstakingly recreated Formula One conditions (both car physics and track geometry) to provide what is arguably the most faithful driving feeling possible on a computer. Cars' aerodynamics are now affected by contact with the kerb, and slipstreams and weather conditions also have a pronounced effect on handling and performance.



***F1GP2*'s unmatched realism and authenticity is apparent in details like foglights and trackside advertising hoardings (above)**



'In terms of sheer processor workload, the lighting algorithms add a little but the amount of texturing is the greatest slowing factor. There's so much to do for every pixel and there are so many pixels'



Maranello's great red hope powers down the back straight (above). Other F1 teams – like Ligier (below) – are also included



'I've acquired all the data from very good sources,' says Crammond. 'People who know the figures say it is accurate. The simulator has been massively extended and enhanced. It's a much better set than the first game's.'

Complementing *F1GP2*'s physical simulator is its artificial intelligence routines. Crammond appreciates that a good racing game must include toughened opponents and has gone to great lengths to ensure that the fundamental principles are correct. He believes that even if you've got great AI, if some of the lowest-level routines are even slightly inaccurate the cars will appear stupid.

Crammond's games have always combined an extensive options menu (single races, championships and different levels of detail) with minimal extraneous material. *F1GP2* is no exception. All the driving aids in *F1GP* (like auto braking and an optimum racing line) have been retained, so the player can concentrate on tactics and positioning rather than merely staying on the track.

Although Geoff Crammond is regarded as a one-man outfit, he inevitably receives some outside assistance. As well as Norman Surplus, there's another family member, Dave Surplus, who test-drives the game to check the performance and weed out flaws. The menus are programmed by Pete Cooke, who also designed the track

editor which Norman is currently using to map the courses.

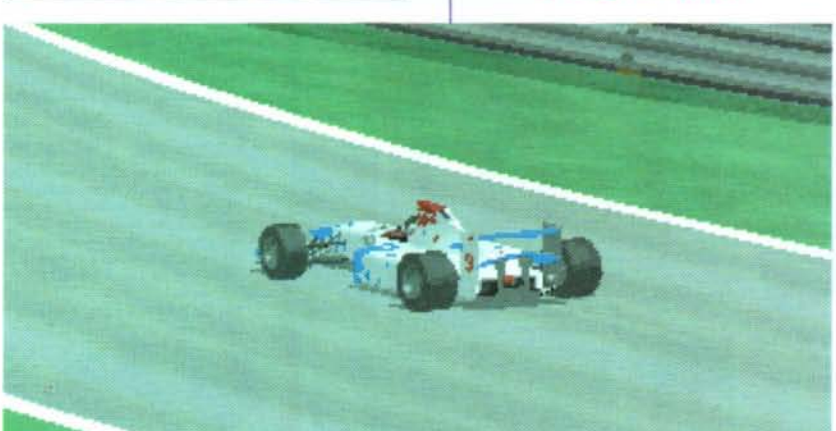
F1GP2 is scheduled for release in the autumn. Does Crammond have any plans for after it is completed? 'I don't want to work these hours [9am to midnight] every day,' he confesses. 'I regard programming as a means to an end and I enjoy the technical challenge of getting the game to behave and appear as realistic as possible. I'm not trained as a programmer. My background is… well, I've got a degree in physics and worked for eight years in the defence industry as a systems engineer. I used *FORTRAN* as a tool for mathematical modelling. But I'm unlikely to issue *F1GP2* and then take no more interest in it. It's something I could keep evolving.'

Crammond won't talk about whether his plans include sequels to other games, but *Stunt Car Racer* would be a natural choice. 'Now that I've got the racing engine I'd like, it's all a matter of time and resources,' he muses. '*Stunt Car* would be a wild experience with 26 cars bobbing up and down at the same time.'

Whatever course Geoff Crammond pursues, gamers all over the world will no doubt be waiting eagerly to see the fruits of his labour.



A backwards-facing view of your car is available in *F1GP2* (above), as is this TV-style trackside perspective (below)





All of the 16 Grand Prix courses have been included in the game, and each one is a meticulous simulation of the real thing



'I enjoy the technical challenge of getting the game to behave and appear as realistic as possible. I'm not trained as a programmer'



With its unique strategic gameplay and distinctive 3D environment, *The Sentinel* (1986) is a game in a genre of its own



Stunt Car Racer (1988) offered a twoplayer mode which added immensely to what was already an exhilarating, boneshaking ride



F1GP (1990) looks basic compared to its elder brother but it remains one of the most playable racing games available anywhere



Sega's plan of attack

Seven months after launch, the Saturn is still regarded as a second-class system compared to Sony's PlayStation. Is this a machine that should have stayed inside Sega's R&D labs, or have developers simply got a lot to learn? Edge looks at Sega's efforts to realise Saturn's potential







Sega's Yu Suzuki (above) is supervising the Saturn conversion of *VF2* (above left). Even at this stage, it represents a vast improvement over both *VF* and *Daytona USA*

Sega now faces a tough test. Although it claims that over one million Saturns have sold through Japanese stores – and the US machine has already stolen a march on its competitors – the future of the 32bit system now rests on the uncomfortably familiar maxim, 'software sells hardware'. Put simply, the next six months is going to be a crucial period for the Japanese company.

Just as *Virtua Fighter* singlehandedly sold the Saturn when it was released in Japan last November (98 per cent of all owners bought the game), it was *Daytona USA* that sowed the first seeds of doubt in the minds of gamers eyeing up Sega's 32bit machine. With its clumsy visuals falling well short of Namco's PlayStation conversion of *Ridge Racer*, the Saturn has recently been the subject of much scepticism in the games development community. After all, if Sega's own programmers can't get the machine to perform well, what chance has the average thirdparty developer?

Anxious about the lack of confidence in its system, Sega set about rebuilding the Saturn's credibility. At the Sega DevCon in the US earlier this year, it showed off its Sega Graphics Library, developed by R&D division AM2 to make better use of the machine's 3D graphics (in Japan, it was touted as a whole new operating system). The potential of the new graphics libraries was authenticated by a rolling *Virtua Fighter 2* animation that has since been heavily publicised in Japan as a teaser for the Saturn game expected later in the year.

AM2 head **Yu Suzuki** is responsible for the conversion of Sega's arcade games. Currently overseeing work on Saturn *Virtua Fighter 2*, he concedes that converting high-end coin-op games does present a considerable challenge: 'The main problem is that we don't really think about the home version when we're developing arcade games. It's very important to make full use of the power of high-end arcade machines, so converting such games to less powerful hardware always requires intricate programming to obtain the best possible results. Despite this, we always aim for a perfect translation.'

Sega's rich heritage of superb arcade games is undoubtedly its strongest card. In Japan, a conversion of one of Sega's coin-op is guaranteed to shift at least 500,000 copies. However, as the company continues to strive for higher levels of graphical excellence with its Model 2 (and, soon, the PowerPC and Martin Marietta-powered Model 3) coin-op hardware, the Saturn is already finding it hard keeping up with the pace of technological advance.

'We don't think that next-generation software development has been perfected yet,' reckons Sega's **Yoshi Ishii**, producer of several Saturn games, including the spectacular *Panzer Dragoon*. 'There's enormous pressure on us at the moment to get great games out, but we're still on the upward slope of the learning curve.'

Unlike the PlayStation, the Saturn does not contain a dedicated geometry engine for calculating polygons – instead, the twin CPUs handle all the calculation, and the VDP1 chip, in conjunction with the frame buffer, draws 3D objects to the screen as distorted sprites. The decision to design the Saturn in this way was an attempt to cater for all needs: the two SH-2s were included give the machine some serious computational power, with the VDP1 processor providing 2D performance that would outclass anything its rivals could offer. According to Sega, it was a question of 'balance'.

'The SH-2 was chosen for reasons of cost and efficiency,' claims **Kazuhiro Hamada**, section chief of Saturn development at the time of the machine's conception. 'The chip has got a calculation system similar to a DSP but we realised that a single CPU would not be enough to calculate a 3D world.'

As well as the VDP1 chip, the Saturn has a second video processor, called, unimaginatively, VDP2. This gives the machine simultaneous playfields which are drawn completely independently of the CPUs – it's possible to have the CPUs calculating the maximum number of polygons, for example, while the VDP2 draws parallax backgrounds or even

Continued next page

Initially produced to demonstrate AM2's new SGL (Sega Graphics Library), this early *VF2* demo runs at 60fps at 704x481 – the highest resolution possible on the Saturn



Sega development







Virtua Fighter 2 **on the Saturn is due in December. So far, Sega has finished the four most complex characters in the game: Rau, Pai, Lion and Shun. With two characters onscreen, the game runs at around 30fps**



Mode-7-style distorted ones. This is a combination that the PlayStation would find tough going.

The VDP2 chip is seen by many Saturn programmers as the key to really harnessing the power of the system. 'It's not difficult to use VDP2,' says Kazuhiro Hamada, although he admits that 'it takes plenty of time to find an effective use for it. There are so many different ways in which it can be employed.'

Scrolling and sprite handling is the area in which Sega is confident its machine will outshine the PlayStation. 'To be honest, VDP1 is not powerful enough to replicate the latest polygon arcade games,' concedes Hamada, 'but for sprite and scrolling games it's fine.'

Sega's ST-V (formerly Titan) arcade board, effectively a low-cost arcade PCB designed around the Saturn's internals) will make the most use of this 2D prowess. Although the arcade hardware is slightly different from the mass-production machine (and the development tools are different) this sharing of technology could prove to be a valuable hit factory for Sega. But it's not without its problems.

'The conversion from ST-V to Saturn is not quite as easy as you'd think,' confesses AM2's technical research manager, Tadahiro Kawamura. 'The ST-V board and Saturn have of course some common points and parts, but conversion from the arcade board to the Saturn requires that some parts of the game have to be reprogrammed.'

And, despite the success of Namco's *Tekken* in both the arcades and on the PlayStation, this type of undertaking is notoriously risky due to the rate of technical change in the coin-op market. What would assure success is some quality games that can take advantage of the Saturn's sprite-based hardware.

'The ST-V board is designed primarily for fighting games, driving games and sports games,' elaborates Kawamura. 'We are doing some specific games for the arcade – after all, there are some games that don't work so well in the home – but usually when we release a game for the ST-V, we are thinking of it making the journey to the Saturn.'

Despite the Saturn's ability to produce sophisticated 2D, what most developers are striving to achieve is smooth, fast 3D, and so far many have been unimpressed with the results they've managed to obtain.

Keiji Okayasu, software development chief at Sega Of Japan, acknowledges that there is mounting dissatisfaction among certain developers – and, more importantly, among Saturn owners – about the quality of the machine's 3D. 'A lot of people complained about the glitchy polygons in *Virtua Fighter* during the replays, so for the sequel we're using different techniques,' he explains. 'Making the OS demo was a useful process, but converting *Virtua Fighter 2* will be a very different task. For example, in the demo there's no player control, so it was possible to get it up and running at 60fps. It will be much harder to do that now we have two



Yoshi Ishii is one of SOJ's most respected software producers. Titles to his credit include *Fantasy Zone, Hang On* and *Out Run*

'People complained about the glitchy polygons in *Virtua Fighter*. For the sequel we're using different techniques'

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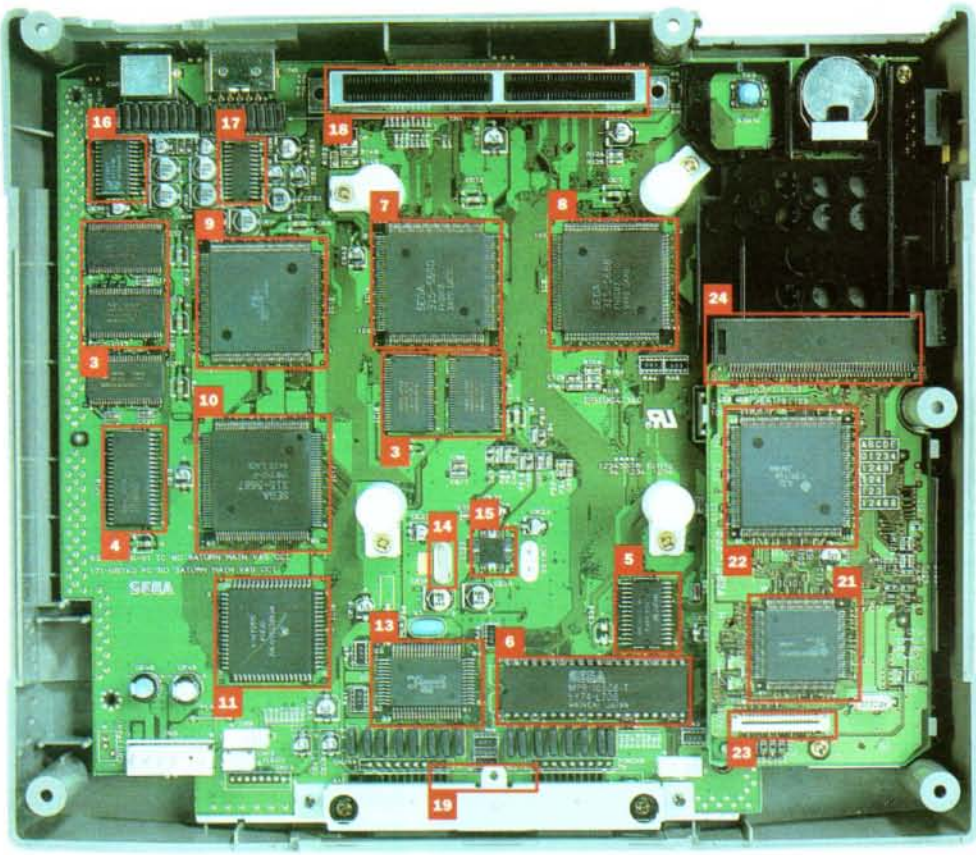


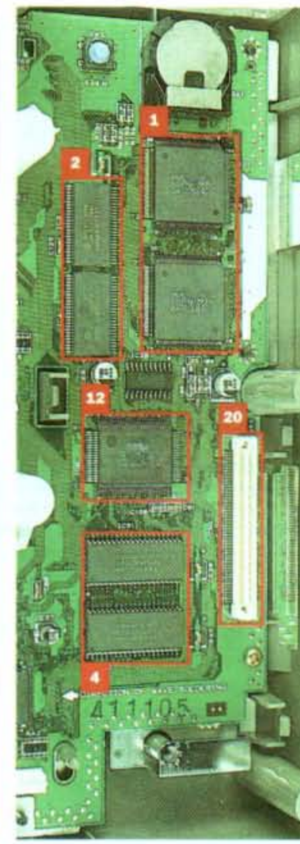




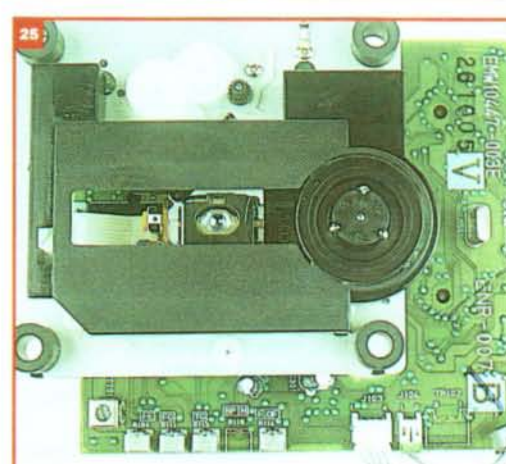


Inside the Saturn





Taking a screwdriver to the Saturn reveals *a lot* of silicon. Hidden beneath the CD interface lie the twin SH-2 CPUs, SCU, SDRAM and RAM (see inset, far right). The CD-ROM mechanism (below right) contains 4Mbit of buffer RAM and even more chips...



1 2x Hitachi SH-2s @ 28.6MHz, 25 MIPS
2 16Mbit SDRAM for SH2s
3 12Mbit SDRAM for VRAM and frame buffer
4 512K sound DRAM for 68EC00
5 32K SRAM for battery back-up
6 512K IPL (initial program loading) ROM – initiates the Saturn's boot-up sequence
7 VDP1 32bit video display processor, sprite processor and texture-mapping engine with dual 256K frame buffers
8 VDP2 32bit video display processor with five simultaneous scrolling backgrounds and two simultaneous rotation fields
9 Processor controller & LSI for graphics
10 Saturn Custom Sound Processor (SCSP). Contains Yamaha FH-1 DSP (11.3 MHz) and DRAM controller for sound processor
11 Sound CPU – Motorola 68EC00 @ 22.6 MHz
12 System control unit @14.3 MHz – connects the Saturn's three buses
13 System manager and peripheral control – 4bit Hitachi chip including battery back-up
14 Crystal oscillator
15 Integrated circuit clock controller
16 Digital to analogue converter
17 RGB encoder (made by Sony)
18 Cartridge slot
19 Connector for joypads
20 Connector for CD interface
21 SH-1 processor for CD drive
22 MPEG interface
23 CD drive board interface
24 100-pin CD drive board connector
25 Double-speed JVC CD-ROM drive with 320K/sec data transfer rate











Sega development



Sega's Tadahiro Kawamura, manager of AM2's technical research section, developed the new SGL development tools. Prior to that he programmed the *Virtua Racing* coin-op





Previously, the Saturn development system included a P-Box, or programmer box (left), instead of a production Saturn. In the new system the P-Box has been replaced by SOA's CartDev box, which sits below the Saturn, and a cartridge which interfaces with the PC or workstation. Sega's 'official' development set-up (right) includes an SGI Indy, *Softimage*, CartDev, SNASM2, and AM2's SGL

Continued

characters onscreen.'

When Saturn projects like *Virtua Fighter 2* and *Virtua Cop* were being planned as early as last year, AM2 chief Yu Suzuki requested that a 'smarter and more convenient' set of development tools be produced to assist in the conversion of arcade games to the Saturn and help with general software development. Together with Sega Of America and numerous thirdparty developers, Sega Of Japan carried out research in order to find out which aspects of the present development tools should be improved.

This was the impetus behind the development of the Sega Graphics Library – produced by Tadahiro Kawamura. Combining tools for modelling, animation, textures and fractal graphics with extra programming information for the central processors (the issue of juggling a main CPU and a sub-CPU is one that Sega has been especially keen to address), it should provide a significantly enhanced development environment.

For the most part, the Saturn's complex design has done it few favours. With seven independent processors, getting the whole architecture to operate efficiently is not easy. SN Systems' **Andy Beveridge**, designer of the PSY-Q development system for the Saturn (as well as its PlayStation equivalent), admits: 'It's a real coder's machine. For those who love to get their teeth into assembly and really hack into the hardware, the Saturn will probably pack a few surprises. It's going to take some time before we'll see what it can really do.'

> 'The conversion from ST-V to Saturn is not quite as easy as you'd think. Some parts of the game have to be reprogrammed'
> Tadahiro Kawamura, technical research manager, AM2

LA-based developer Scavenger (responsible for the superb *Subterrania* on the Mega Drive and Saturn titles *Vertigo* and *X-Men*) recognises the Saturn's strengths, although it had to develop its own set of libraries to exploit the hardware efficiently.

'The Saturn is very fast at drawing single pixels using its processor, while the PlayStation has to go through its polygon engine,' explained the company's lead Saturn programmer. 'That gives the Saturn programmer more flexibility. However, the Saturn does have the tendency to write polygons that are not seen. Overall, though, it has more calculating power than the PlayStation.'

CPU throughput is indeed one major area in which the Saturn can boast superiority over the PlayStation. Granted, the Sony machine is able to calculate more geometry and display more polygons, but in terms of computational power the Saturn definitely has the edge.



Model 2-based games such as AM3's *Sega Rally* are programmed in assembly and use vastly more powerful hardware than Saturn







The official development system



Cross Products' managing director Ian Oliver (right) and general manager Jim Woods. The Leeds company is now owned by Sega

Leeds-based Cross Products is the Sega-owned firm behind the Saturn's official development system. Formed by ex-game coders from Realtime Games (responsible for classics such as *Starstrike* and *Carrier Command*), Cross Products has grown into a 25-strong company specialising in cross-platform development systems.

'I can remember hating the tools we used back then,' recalls managing director **Ian Oliver**. 'So we joined up with our neighbours, Vektor Grafix, and set about writing our own development software.'

After designing systems for home computers and consoles including the Amiga, ST, SNES and Mega Drive, Cross Products was bought by Sega Of America over a year ago. Since then it has worked closely with Sega to design an efficient authoring system for the Saturn

Cross Products' Saturn system – which, like all its development software, comes under the SNASM2 label – uses a mass-production Saturn (previously it was a bulky programmer box supplied by Sega) with a switch that allows the user to toggle between the Saturn's internal drive or a CD emulator. Connected to the Saturn via the cartridge port is SOA's CartDev hardware which effectively turns the production Saturn into a development station. This, in turn, connects to a PC or SGI Indy via SCSI.



Cross Products' development system works with SOA's CartDev box (left) and also the company's new Mirage CD emulator (right)

While Sega supplies its licensees with full documentation on the Saturn hardware plus graphics and sound libraries, Cross Products supplies the CartDev, CD emulator and a modified Saturn, as well as the full suite of development software (including assemblers, linkers, debuggers, C compilers, etc). Cross Products can be reached on 01132 429814.

The alternative: Psy-Q

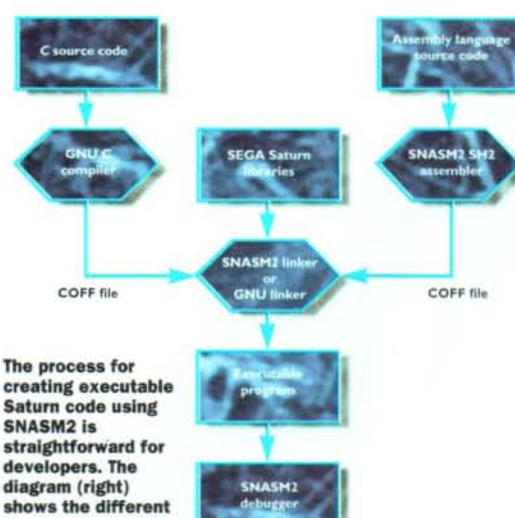
Bristol company SN Systems has not only produced the official PlayStation authoring tools but is also responsible for a Saturn development system which does away with Sega's CartDev box and uses a simple cartridge which plugs into a PC.



The Psy-Q system uses SN System's own C compiler shell program and its proprietary assembler and linker. One important benefit of the system is that it works in a similar way to the company's Psy-Q Playstation kit, so developers don't have to re-learn a new system if they port their project over to the Saturn.

Psy-Q is priced at a similar level to SNASM2, with the basic system costing around £3000. SN Systems can be contacted on 0117 9299733.

SNASM2 authoring for Saturn



The process for creating executable Saturn code using SNASM2 is straightforward for developers. The diagram (right) shows the different stages involved



The Commodore story

With the Amiga now set to return to the high street, **Edge** traces the 37-year history of its creator, Commodore – one of the most famous names in computing – from Canadian cradle to Bahamian grave to German resurrection

The PC has become so dominant in the home that the words 'PC' and 'home computer' are now effectively synonymous. But just a few years ago, it was all a different story. Long before the hordes of PC manufacturers turned their guns on the domestic market, the UK was the fiefdom of two old barons of the computer industry: Atari and Commodore. But now that era is over. By the early '90s Commodore and Atari were struggling, losing millions and haemhorraging market share. Last year Commodore finally went into receivership. The tale of the company's rise and fall mirrors the dynamic history of home computers and consoles.

Commodore began life in Canada in 1958 as a repairer of office equipment – fixing typewriters, punch-card machines and cash registers. After a few years it went into production itself, on a modest scale at first, with a range of electronic gadgets, and then more profitably, producing calculators. The company's huge product line, ranging from simple desktop adding machines to calculators capable of performing trigonometry functions, soon made Commodore a household name in the US.

Commodore's move into manufacturing was regarded as a natural step for the company. However, its next move – the purchase of a small firm called Micro Office Systems (MOS) in 1974 – was a little bolder, setting it on a course that would lead to it producing some of the most popular computers ever released. MOS staff included many ex-employees of Motorola, the company that went on to produce the CPUs for the Amiga, Macintosh and Atari ST. At the time, MOS was working on a new chip based on Motorola's 6800, called the 6502, which was to become a vital component in Commodore's early computers. A side benefit was that the chip also served as the foundation for Apple and Acorn's early range of machines, which meant that there would be no shortage of people with 6502 programming expertise.

The following year, 1975, the company formed a new division called Commodore Business Machines (CBM). Its first product, the Versatile Interface Adaptor or VIA, was launched later the same year and was heralded, by the company at least, as the world's first personal

feature









Commodore hardware (from top to bottom): the worldbeating C64; the 16bit Amiga A500-Plus; the cut-down A600, pitched as a games computer; the powerful and popular A1200; big-box success the A2000; expensive failure the A3000; and Commodore's doomed attempt at multimedia, the laughable CDTV

computer. Its main advantage over most of the computers of that era was its keyboard interface – a relatively new concept at a time when punch cards were still the standard method of data input.

Commodore obviously realised it was onto a good thing with the VIA's keyboard interface because it went on to produce the KIM (Keyboard Input Module) in 1976. This looked even more like our modern concept of a personal computer: it had a screen, a keyboard and a high-level programming language – an early form of BASIC – which was actually resident in ROM, thus removing the chore of loading it into RAM every time you wanted to write a program.

Although it was a significant step forward, the KIM achieved only limited success. Computers hadn't yet become commonplace in offices, the machines themselves were expensive and limited in scope, and few people could actually use or program them. By 1977, however, the business world was ready to embrace the digital era, due largely to the gargantuan efforts of IBM and its dedicated sales team. Commodore exploited this heightened awareness to introduce the PET (Personal Electronic Transactor) which, despite its odd name, achieved strong sales.

It was easy to see why. The PET had a price tag which was within the range of many businesses; it was a neat, self-contained unit; and it boasted a mammoth (for the time) 4K of RAM. It initially stored its data on specially designed cassettes, but within a couple of years upgrades for disk drives became available.

The PET could have been even more successful had it been marketed more strongly. As it was, Commodore lost ground to Apple, which, driven by the efforts of Steve Jobs, did a better job of pushing the similarly specified Apple I to the business community. Later in 1977, Apple took a larger chunk of the fledgling personal computer market with the release of its technically superior and more easily customised Apple II.

Although the PET failed to fulfil its potential, it made serious money for Commodore. This revenue would provide the funds for the company's assault on the entertainment market, then dominated by Atari, whose management team would include former Commodore employee Jack Tramiel.

Commodore's choice of weapon was the VIC-20. This cousin of the PET had a graphics processor (VIC stood for Video Interface Chip) that could display up to 20 colours (hence the '20'). It also had a music chip, Atari's 9-pin joystick interface and 4K of memory – features which put other low-cost machines to shame.

The VIC-20 was a huge hit worldwide and put a Commodore computer in many homes. Sales of VIC-20s not only brought in pots of cash for Commodore but proved that Atari's position was not unassailable. Commodore had grabbed a big chunk of Atari's profits despite – or perhaps because of – Atari's strong-arm software development strategy. The Atari 2600 VCS was still

Where are they now?

Key players in Commodore's recent history




Commodore UK's dynamic duo, David Pleasance (left) and Colin Proudfoot (right)

Irving Gould

Former chief executive Irving Gould was one of the people who suffered most from the collapse of Commodore. He lost a small fortune when the firm went under, and although he has other business interests, at 74 he's unlikely to recover financially.

David Pleasance/Colin Proudfoot

The two joint MDs of Commodore UK are probably wringing their hands anxiously waiting for a call from Escom. At the moment it's not certain that the German PC manufacturer is willing to pay the £2 million which Commodore's UK insists it is worth.

Dave Haynie

Dave Haynie was one of Commodore's best engineers, especially popular with Amiga users because of his authorship of several of the machine's best shareware programs. He now works for multimedia software developer Scala.

Lew Eggebrecht

Ex-vice president of engineering Lew Eggebrecht was responsible for much of the Amiga's technical brilliance. He now works for a California-based chip design company – which valued him enough to build a special facility for him in his home town of Denver.

Medhi Ali

As president of Commodore, Medhi was one of the most feared and disliked members of the company's management team. His authoritarian style often had his staff cowering and his popularity was further eroded by a series of bad business decisions. Many feel that he was the man most responsible for the company's demise. He left Commodore after the liquidators moved in and is still looking for a job. He's hardly short of cash, though...

Jay Miner

Jay Miner was one of the men who created the Amiga – he also had a hand in the development of Atari's seminal 2600 VCS console. A popular and well-respected member of Commodore's staff, he sadly passed away last year.




Medhi Ali (left), the man at the helm when Commodore went under, and Irving Gould (right)

the market-leading console, but it was clear that Atari now had some serious competition.

The release of the VIC-20 ushered in the golden age of 8bit home computing in the UK. People wanted machines that could both play games and run serious software, and Commodore and Atari were only too keen to supply them. Atari made the first move with its 800 series, which was followed by Clive Sinclair's hugely popular ZX Spectrum. But in 1982, Commodore delivered its knockout blow. The Commodore 64 annihilated the competition, even eventually overwhelming the Spectrum. Atari had tried to take on Commodore on at its own game, making computers rather than consoles, and had got badly burned.

The C64 became the most popular home computer of its day, with millions of units shipped worldwide. Such was its success that it still has a large following today – even now, there are plans to distribute it in China. The reasons for this success are obvious: it was extremely versatile, reasonably priced, and overwhelmingly powerful for the time, with an incredible 64K of memory. Not only did the machine have a sophisticated LSI sound chip, but its graphics capabilities were far superior to anything else available. It was also an attractive little beast, with its perfectly formed beige casing and matching cassette drive.

Unlike Atari, which tended to sue anyone who tried to write software for its machine, Commodore actually encouraged people to develop games for the C64. The result was that innovative, high-quality games arrived by the bucketload – some of today's most respected games programmers learned their trade on the C64.

At around the same time, two small Japanese companies called Nintendo and Sega set out to take over the console market. Their arrival left Atari in a tricky situation – no longer the console king and trailing far behind the C64 in the home computer market. After a series of appalling decisions and a great deal of corporate in-fighting, Atari's top brass decided that the company's best chance lay in producing the next generation of home computer. The result was the 16bit Atari ST, launched in 1986.

But Commodore's technical staff had not been idle. A immensely talented team, including Jay Miner (who had worked on Atari's VCS console), R J Mical and Dave Morse (both of whom would go on to work on the 3DO) and Dave Haynie, had been beavering away in Silicon Valley, and in 1985 they produced the Amiga A1000, a 16bit machine light years ahead of contemporary consoles and home computers. It still used a Motorola CPU but now it was the much more powerful 68000. The Amiga was thus incompatible with the C64, but this was a small price to pay for its increased power. It also featured an accessible 'Zorro' internal expansion slot where extra hardware could be plugged in.

However, there were some limiting features. The standard Amiga only had 256K of RAM – too little for such a powerful machine. The Atari ST would later come with 512K of RAM, a more realistic amount. Another disadvantage was that the Amiga's operating system wasn't stored in ROM, so you had to load it from floppy every time you used the machine.

Although strictly speaking technologically inferior to the Atari ST that would appear a year later, the A1000's incredibly versatile operating system gave it one distinct advantage: the company that developed it, Metacomco, had only worked with mainframes before endowed *AmigaDOS* with multitasking capability.

Despite the oohs and ahhs that accompanied the launch of the A1000, the machine turned out to be a costly venture for Commodore. Its prohibitively high price – around £1500 – prevented it from being a true home computer and Commodore didn't even make enough to cover its development costs. Apart from the financial loss, the failure of the A1000 gave Atari the market to itself for over a year while Commodore went back to the drawing board.

But round three of the Commodore vs Atari battle was far from over. Commodore came back strong with the Amiga 500, which was technically a match for the ST. Both machines used the 68000 processor and had 512K of RAM, and they boasted almost identical expansion potential. In terms of processor speed the ST was actually faster – 8MHz as opposed to the A500's 7.14MHz – because of the Amiga's more complicated architecture. However,

On May 30, German PC manufacturer Escom and its partners announced their plans for the Amiga technology and the Commodore brand name, which Escom bought in April (see **Edge** 22). A new company – Amiga Technologies GmbH – has been formed which will restart production of the existing Amiga range (many of the machines are likely to receive cosmetic changes) and also develop new models.

The Amiga has always had a high profile in Europe and is still regarded with a great deal of affection (this was obviously a major factor in Escom's decision to bid for Commodore). Escom is planning to extend the lifespan of the ageing format by taking it into the world of multimedia, and is already working with companies like Scala and VisCom to create interactive TV and even home-shopping applications for the machine.

In another innovative move, Escom intends to license the proven Amiga technology to other hardware manufacturers. A deal has already been hammered out with the Tainjin Family-Used Multimedia Company of China, which will be building its own low-end Amigas and marketing the Commodore 64 as a cheap computer for Chinese homes.

It's clear that Escom is pleased with its purchase and has grand plans for the future of the Amiga. Confident Amiga Technologies personnel were even speaking of a turnover in excess of DM100 million by the end of 1995...



this same custom architecture meant that the Amiga didn't have to rely on its CPU alone – it could share tasks between its various custom chips.

The arguments over which machine was better raged for some time, but after a while certain trends started to appear. Because of the ST's built-in MIDI port it became a favourite of musicians, while the Amiga's custom graphics chips made it the ideal artist's tool and a superior gaming platform. Rather unsurprisingly, it turned out that there were a lot more gamesplayers and artists than there were musicians, and the ST started to decline in popularity. The machines continued their duel with each new model, but the Amiga kept edging further and further ahead until, by the early '90s, the ST was effectively dead.

The departure of the ST ushered in a brief period of good fortune for Commodore. The Amiga developed a huge following among users and software developers alike, and the money came rolling in once again. Commodore didn't take it easy, though, and a substantial amount of its enormous profits were ploughed back into developing new machines, one of which was a new version of the A500 called the A500-Plus, boasting 1Mb of RAM as standard and an improved graphics chipset.

Emboldened by the success of the early A500s, Commodore decide to make a 'big box' Amiga. The result was the A1500 – essentially an A500-Plus in a desktop casing with two floppy drives, four Zorro slots and room to fit an internal hard drive. It appeared to be just what Amiga users wanted – a truly expandable machine. However, it was no faster than previous models and still used the same CPU as the A500.

Next came the A2000, the most expandable Amiga to date, which was also based on the A500 chip and came with 1Mb of RAM. However, it boasted seven expansion sockets – five Zorro II slots, a CPU slot and a video slot – and had a SCSI controller and a hard disk as standard. This expansion potential was put to good use by an American company, NewTek, which created the Video Toaster. This board added extra video capabilities and was bundled with software for 3D animation, video titling and font character generation.

The A2000 was another huge hit, and for a while Commodore couldn't put a foot wrong. Perhaps the company itself believed that it was invulnerable. It had risen from a small typewriter-repair company to become a multinational corporation. At the height of its power, the holding company, Commodore International Limited, had offices and manufacturing plants around the globe.

Despite the improved expandability of the machine, Amiga users had yet to really experience any increase in computing power until Commodore launched the A3000. Based on the 68030 processor, it was around seven times faster than a standard Amiga and came with four Zorro slots of the new III standard, allowing faster and more flexible peripherals to be added. It also had a new easier-to-use and more sophisticated GUI. Although considerably more powerful than its predecessors, the A3000 wasn't particularly well received and many people complained about the loss of expansion space and the higher price.

Although the A3000 could be considered a failure, Commodore's previous launch had given new meaning to the word. The CDTV (which, hilariously, was an acronym for Commodore Dynamic Total Vision) was basically an Amiga with a CD drive stuffed inside a VCR casing. Once it went into production, Commodore spent a fortune trying to convince people that it was not actually a computer at all. The result was

that the machine and its range of peripherals died a quick – but expensive – death. However, Commodore did have more success with its A570 CD-ROM drive, which basically turned an A500 into a CDTV.

It turned out that Commodore was only warming up, and a string of bad decisions followed. In 1992, only six months after it went into production, the A500-Plus was replaced by a new machine, the A600, which was more or less a cut-down version of the A500-Plus with a PCMCIA port. Commodore had the new machines manufactured in Australia and launched them on what it assumed would be an eager market. Unfortunately, soon afterwards it announced that two new super-Amigas would be released before the end of the year. Hardly anyone bought the A600, and Commodore was forced to close its Australian office.

Back in America, Commodore's production of PCs was also brought to a halt. It had entered the intensely competitive PC market but clearly wasn't committed to it and suffered heavy losses. Overall, 1992's shenanigans reduced profits to a paltry $28 million.

The new Amigas arrived later in the year, but, owing to a shortfall in supply and increased demand for the new entry-level A1200, they were nearly impossible to get hold of and prices became artificially high. The top-end A4000 failed to bail Commodore out, largely because it had a price tag nearly twice that of a similarly specced PC.

Commodore spent a fortune trying to convince people that the CDTV was not a computer at all. The result was that it died a quick – but expensive – death

In 1993, Commodore lost a staggering $357 million. This was the year of the CD[32]. The CD-based machine had a similar architecture to the A1200 but also offered FMV support and a special AKIKO chip for graphics handling. The first 32bit console in the UK, it suffered from a poor marketing campaign, too few original titles and a distinctly ugly design.

And so, in early 1994 Commodore International Limited filed for voluntary bankruptcy. During the protracted legal wrangling that followed, rumours of buy-outs circulated wildly, but no new machines were produced. Meanwhile, Amiga aficionados waited for news of a purchaser and a resurrection of the brand.

And that's where, after 37 years, Commodore's story ends – but not the Amiga's. Escom, a European PC manufacturer which recently bought the chain of high street stores formerly occupied by Rumbelows, purchased Commodore's core assets in April for $10 million and now owns the Amiga brand. For a further $1 million Escom may also be able to obtain Commodore's production inventory in the Philippines – if the liquidators can retrieve it from the Filipino government.

Whether the Amiga will rise, phoenix-like, from Commodore's ashes remains to be seen. The PC has made great inroads into the home computer market, reaping the full benefit of multimedia and the Internet, and many major developers have abandoned the Amiga. But there are still over two million of them in the UK and many users remain faithful to the machine. The Escom buy-out means the return of affordable home computing. Although the Amiga may not regain its premier position, it's back, and that's something that should be welcomed. E

Testscreen

68



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This month's reviews show that poor quality, unoriginal software can be found on every games system. *Johnny Mnemonic* for the PC could hardly be called a game at all, while *Ultra Vortex* typifies the appalling state of Jaguar software. The Saturn fares little better with *Gran Chaser* – a dull and uninspiring racer.

On the other hand, the Neo-Geo CD's *Fatal Fury 3* and *Puzzle Bobble* are very enjoyable (if old-fashioned), while *Star Trek* (PC) proves that style and depth can happily co-exist.

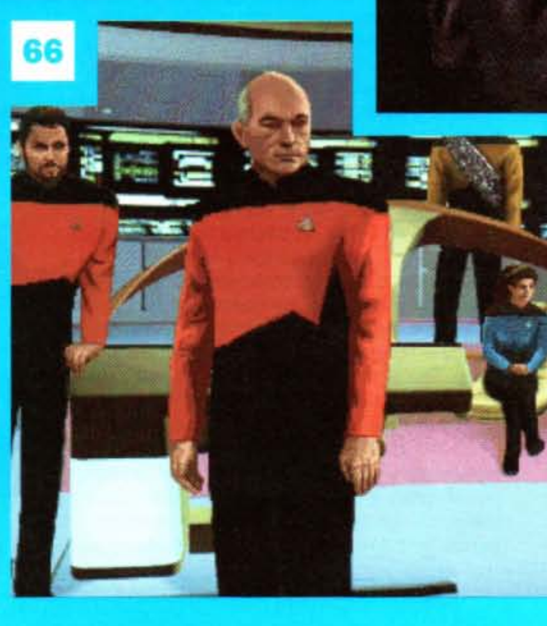
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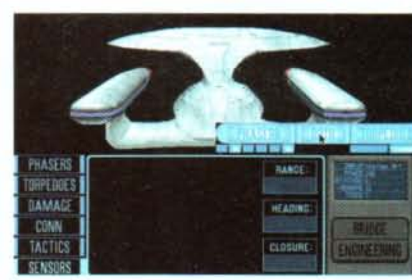


Star Trek
The Next Generation

Format:	PC CD-ROM
Publisher:	Microprose
Developer:	Spectrum Holobyte
Price:	£45
Release:	Out now



The bridge is the hub of operations in *ST: TNG*. All the major characters are on hand to provide advice



The Enterprise looses off a volley of phasers and photon torpedoes at an unseen enemy





You can choose to let the computer handle combat, or try and take 'em all on yourself (top). Later in the game, you get to visit this Federation outpost (above)

Since the days of the 8bit machines, the vast majority of film and TV licences have been six-month rush jobs with zero finesse and little gameplay. Certain companies have become renowned for churning out unoriginal titles at short notice with little regard for gamers. So all credit to Spectrum Holobyte for not hustling *Star Trek: The Next Generation* to the shelves in the hope of a quick cash-in, but instead holding it back in order to develop a decent game.

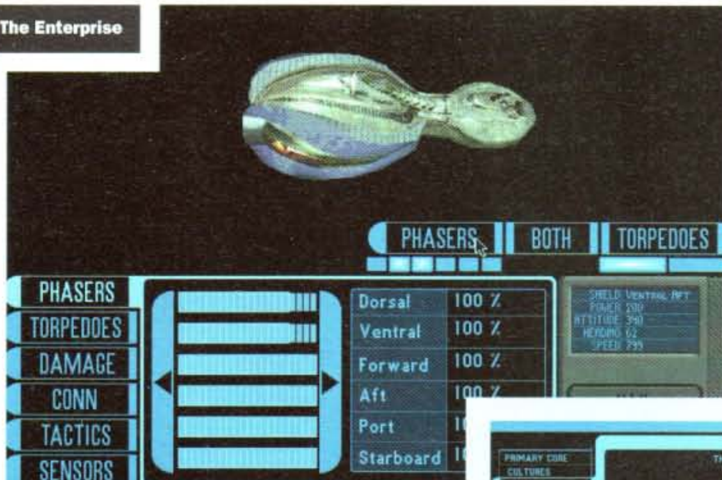
To play *ST: TNG* is to play an episode of the *Star Trek* TV series. Every detail has been transferred to the game with painstaking accuracy. All of the characters speak with their 'own' voices, the Enterprise's key areas are included, and the pre-rendered footage sits comfortably between the scenes, providing a cinematic transition between locations rather than a gratuitous excuse to show off SGI skills. The result is a game that comes closer to being an interactive movie than many titles designed specifically to fill that role.

In *ST: TNG* you play the role of the Enterprise's captain, Jean-Luc Picard, as he investigates a mysterious species previously thought to be extinct. The storyline develops rapidly throughout the game, with frequent plot revelations and rich background detail, interwoven with cut-scenes – these are centred on the Enterprise itself and are based on dialogue between crew members, Starfleet and thirdparties.



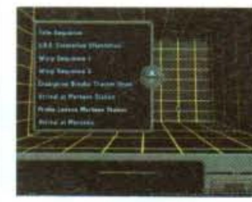
The surface sections of *ST: TNG* have a point-and-click adventure style. They range from simple to extremely obscure

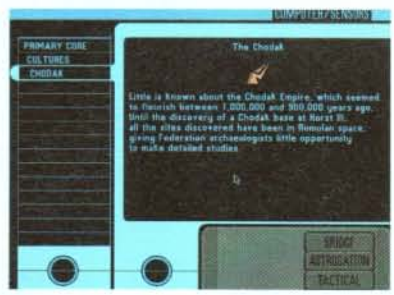
The Enterprise



ST: TNG **introduces a new race to the universe. One of their probes is about to be destroyed (above)**













All the sections of the Enterprise can be accessed from the bridge. Contact Starfleet for mission updates and progress reports (top middle). The holodeck allows you to replay past triumphs (top right). The computer provides information on just about everything (centre left). Engineering experiments can be amusing (centre right). Astrogation gives you an entire universe to explore (above left). The transporter room does exactly what you'd expect it to

Complementing the narrative is a graphical adventure, most of which involves transporting to a planet to solve a 'mystery' which will further your overall progress. The user interface is generally easy to use, the difficulty is about right and there's always a great deal to examine and interact with, but ultimately these excursions fail to provide the same level of satisfaction as the other sections.

For true Trekkies (who will no doubt assure Spectrum Holobyte a profitable title), there's the opportunity to explore the galaxy. Each sector is charted and every planet, quasar and black hole has its own encyclopaedic entry. The onboard computer supplements this data with technical specifications and CVs for crew members, and the holodeck is available to reply to previous encounters. In fact, *ST: TNG* achieves such a level of immersion that it's quite possible to play it for hours without advancing the plot one step.

Spectrum Holobyte seems to be aware that the prospect of commanding an entire starship with no previous experience is a little daunting. Its solution is to include a fully adjustable difficulty structure, with a greater level of self-determination available on, say, Captain than Ensign. This not only gives newcomers a straightforward route into the game, but allows old hands to replay it at a different setting. For example, you can leave it to the computer to handle all the combat (advisable), or control it manually (tricky).



***ST: TNG*'s user interface is one of the best aspects of the game. Most of the items you come across can be inspected and scanned**

Star Trek: The Next Generation is a superbly presented game with genuine depth and longevity. It's intelligently structured and exhibits an attention to detail that immediately distinguishes it (and Spectrum Holobyte) from the pack. In fact, this is what *Frontier: Elite II* should have been: a self-contained world with limitless exploration potential but a guiding hand to steer you subtly through.

With the impressive groundwork now in place, *Star Trek* fans will be expecting a similar level of quality from the sequels due next year.

Edge rating: **Eight** out of **ten**

Fatal Fury 3

Format: Neo-Geo
Publisher: SNK
Developer: In-house
Price: £50
Release: Out now







Geese and Andy prepare to switch planes in attack (top). Some of the backdrops are genuinely impressive (middle), while others are only mediocre at best (above)



Touches of humour abound (above). After each victory, your performance is graded (right)





***FF3* retains the series' main fighters and adds newcomers like the dreadlocked Bob Wilson**

The SNK beat 'em up machine steams inexorably onwards. Apparently unconcerned about the other developments going on around it, SNK seems content to merely soup up its long-established game engine with a few token bolt-on extras.

In the case of *Fatal Fury 3*, this means the introduction of a multi-plane environment, which allows you to evade attacks by moving – albeit briefly – both into and out of the play area. This feature brings out the game's most spectacular graphical effects – for example, produce a certain move while out of alignment with your opponent and it's possible to knock him 'out' of the screen (thanks to some effective sprite scaling). How much this new addition adds to the beat 'em up experience depends on how willing you are to experiment and persevere.

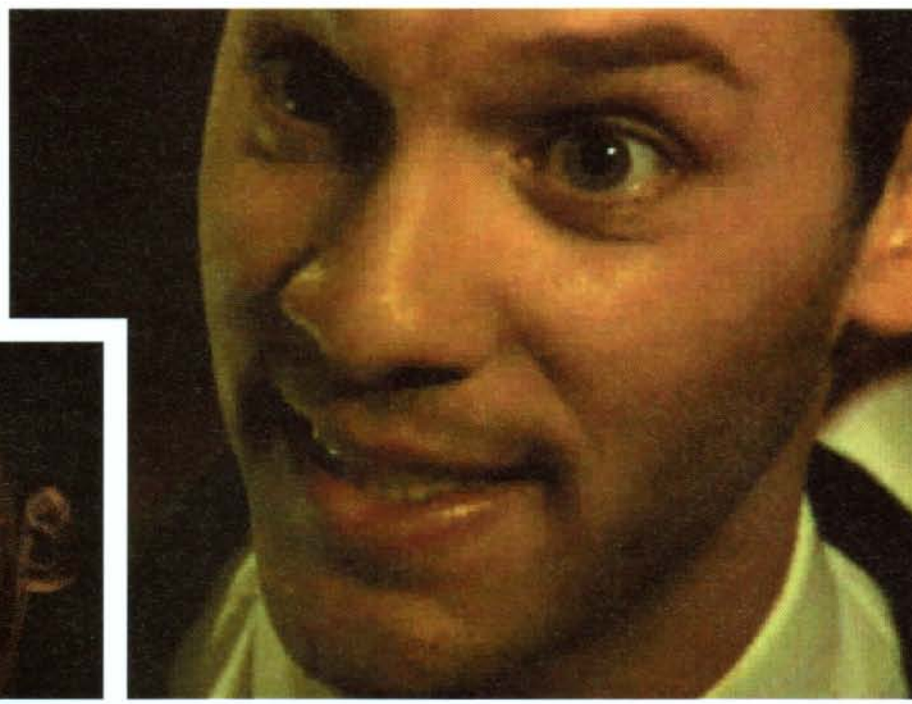
Fatal Fury 3's obligatory new fighters are perhaps the most disappointing aspect of the game. While it's obvious that SNK is keeping an eye on its nearest beat 'em up rival, Capcom (indeed, one character, Sokaku, uses a move immediately redolent of *Darkstalkers*), it's limiting itself unnecessarily. There are a number of dazzling moves in here, but the new characters dishing them out pale miserably beside their peers.

SNK recognises that there remains a hard core of traditional beat 'em up fans, and *Fatal Fury 3* packs in just about every ingredient necessary to meet their requirements. However, it won't suit all tastes, and you get the feeling it knows it.

Edge rating: **Seven** out of **ten**

Johnny Mnemonic

Format:	PC CD-ROM
Publisher:	Sony Imagesoft
Developer:	Propaganda Code
Price:	£45
Release:	Out now





***Melrose Place* heart-throb Christopher Russell Gartin – the star of *Johnny Mnemonic: The Interactive Action Movie* but not of *Johnny Mnemonic*, the movie – kind of loses his sex appeal in a lowly 256 colours (left). But with 32bit graphics and 32,000 colours (above), he's his old self again**

In the bad old days of C64s and Spectrums, games based on films were notoriously bad. Of course, back then the programmers were crippled by tiny memory and pathetic colour palettes, so their games were bound to be pale imitations of the celluloid masterpieces. How could you possibly do justice to the magnificent morphing of *T2* on a C64? You couldn't – you just had to create a badly animated T1000 and hope the kids got sucked in by the hype.

But in this mega-memory, high-powered multimedia age, there's no reason why games shouldn't look as good as the flicks on which they're based. Take *Johnny Mnemonic*, for example – a futuristic cops 'n' robbers thriller based on a William Gibson short story. It's video, video, video all the way through – in fact, you could almost believe you're actually *playing* the movie. Except you're not, because the film features *Speed* star and sex god Keanu Reeves; the game, on the other hand, doesn't. Christopher Russell Gartin (he of not very much *Melrose Place* fame) does his best to look like Keanu, but it's just not the same.

You control Johnny M, who's been taken advantage of in a decidedly cyberspacial way by a bunch of Oriental hoodlums. You have to guide him through five scenes of danger and disaster, peppered with VR flashbacks and the like. So far, so sci-fi – and you haven't even loaded the game. But once you do, you're in for a series of unpleasant surprises.

The first little shock is the outrageous system requirements. The minimum system in the manual is a 66MHz DX2 with 8Mb RAM, a



When the screen narrows, you can perform an action. All you can do in fights is choose 'move'







1 Johnny's in a rush to get to Ralphy's before his head explodes. But he foolishly drags some girl along with him, and they find themselves down in the subway

double-speed CD-ROM drive and 256-colour SVGA graphics. The game runs if you've got this set-up but the video looks terrible and is horrifically jerky. The soundtrack lurches one moment and sticks the next, rendering the game a completely unplayable bleb.

On to a Pentium with 16Mb RAM, 32bit graphics and quad-speed drive. This is more like it – it looks good and sounds fine. But now that you can actually play the thing, the dubious delights of what the programmers might loosely term 'gameplay' are revealed. *Johnny Mnemonic*, it seems, is the 1995 equivalent of the *Dragon's Lair* LaserDisc game. You're shown a video clip, and when it switches to letterbox format you're at an interactive moment. You can now choose one (yes, only one) action: move, look left, look right, use, punch, kick, block or download. If you pick the right one, you're shown another clip. Choose wrongly (or do nothing) and the previous clip loops round again to give you another crack.

Oh joy, it's back to the old trial-and-error game system. Because there's no way you can work out what you're supposed to do from what you're shown onscreen. Should Johnny stumble into danger (which is highly likely because you never know what's coming next on your first play), you have to hope that you hit the right fight button or it's game over faster than you can say, 'This isn't as exciting as the story, is it?'

But you don't even have to play the game to discover that there's something fundamentally wrong. For some bizarre reason, the publisher, Sony Imagesoft, has had the insane honesty to call the game *Johnny Mnemonic: The Interactive Action Movie*. For all the gaming kudos that carries, it might as well have written 'This game is rubbish' all over the box. When will they learn? Movies were designed to be watched; games should be designed to be played.

Perhaps the biggest giveaway is the files on the game's two CDs: disc 1 is filled with a huge 646Mb MNEMONIC.CIN file, while disc 2 has a 452Mb MNEMONC2.CIN, some files for installing the game, and *QuickTime For Windows v2* . Anything else? Oh yes, there's the game engine – a massive 760K. That's about 99.93% movie and 0.07% game. Interactive movie, anyone?





2 Careful not to tread on the electrified tracks, she gets her foot stuck. 3 A train rumbles in the distance. Glancing to the side, you see a corridor. But can you get there? No. 4 Someone waves frantically at the barrier. 5 But is it all too late? Do you really care?

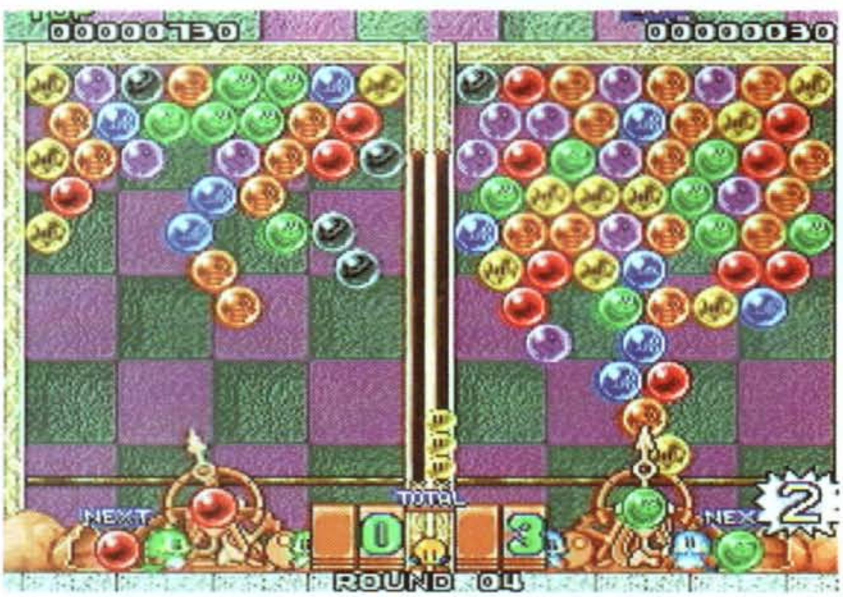
Edge rating: **Three** out of **ten**





This girl is your guide to the game. Like Johnny, she doesn't look very attractive in 256 colours

Puzzle Bobble



Simultaneous twoplayer *Puzzle Bobble* is simple and superb fun. Every chain of bubbles you get rid of appears on the other side of the screen to infuriate your opponent





Differently patterned backgrounds offer a modicum of variety, but visual treats aren't a strong point

Format:	Neo-Geo CD
Publisher:	SNK
Developer:	Taito
Price:	£50
Release:	Out now

Forget any notions you may have about *Puzzle Bobble* being a sequel to *Bubble Bobble* or *Rainbow Islands* – its Bobbleness is mere window dressing. Beneath the dragons and the bubbles is a simple action-puzzler that's best described as a combination of *Tetris* and console title *Puyo Puyo* (aka *Dr Robotnik's Mean Bean Machine*).

At the top of the screen sits a wall of differently coloured bubbles, which you've got to clear within a time limit. To do this you fire bubbles upwards, attempting to make chains of three or more of the same colour, which then drop offscreen. The 'ceiling' grinds down at regular intervals, and when it reaches the bottom, that's it. It's standard post-*Tetris* fare, but well executed, with lots of cleverly designed levels.

As a oneplayer game, it's limited (severely, if you use the infinite continues), but the simultaneous twoplayer mode is what lifts *Puzzle Bobble* above average. As in *Tetris* and *Puyo Puyo*, all the bubbles you clear from your side of the screen reappear on your opponent's screen and vice versa. It's highly competitive and instantly addictive. In fact, it's worryingly easy to lose hours playing game after game of twoplayer *Puzzle Bobble* – a feat that many supposedly more sophisticated games can't match.

Puzzle Bobble provides further proof, if any were needed, of the Neo-Geo's seemingly effortless capacity for old-fashioned, basic but highly playable games.





After you lose a life, a dotted guideline appears for one level to help you aim your bubbles better

Edge rating: **Seven** out of **ten**



Here's the tenuous Bubble Bobble connection: your bubbles are fired by good ole Bub and Bob

Ultra Vortex

Atari seems to be having problems with beat 'em ups. Not only is it still convinced that *Kasumi Ninja* was a good game, but it's now slipping *Ultra Vortex* out while publicly acknowledging that its next release, *Fight For Life*, is superior. So what's the point of buying this when you know that something better is due in a few weeks?

But even if that weren't the case, you'd be hard pushed to justify buying *Ultra Vortex*. It may be better than *Kasumi* (not hard), but *SFII* or *Mortal Kombat* it ain't. Those two games, along with the dozens of other beat 'em ups on less powerful machines, always have something to grab your attention, whether it be impressive special moves or flash backgrounds with lots happening on screen.

Not so *Ultra Vortex*. The animation for the characters is clumsy, which you discover when you try to control them. Everyone knows that the Jag joypad doesn't exactly lend itself to beat 'em ups, but this is particularly bad. Pulling off one of the so-called special moves is more down to luck than skill. The characters themselves are dull, as are their moves, and everything just seems to lack imagination. Dull sound, dull graphics and non-existent gameplay do not a good beat 'em up make.

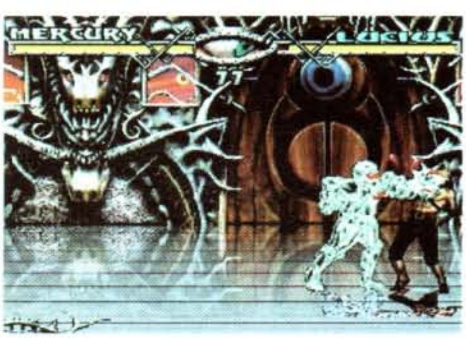
It's a good thing that someone at Atari had the sense to license *MK3* and *SFII*, because it seems that, left to its own devices, Atari would be in all sorts of trouble. *Kasumi* was awful, *Ultra Vortex* is awful, and if *Fight For Life* is less than stunning Atari will lose the fight in more ways than one. The Jaguar still has to prove itself as a beat 'em up machine and it's getting a bit late in the day to release stuff like *Ultra Vortex*. It's rubbish.

Edge rating: **Three** out of **ten**

Format:	Jaguar
Publisher:	Atari
Developer:	Beyond Games
Price:	£50
Release:	July







The human character in *Ultra Vortex* boasts a fireball as his special move. Not exactly original, is it?





Atari went for the lowest common denominator and put a female character in the game (right). She even wears the same clothes as the girls in *Mortal Kombat*. Like the rest of the game, her moves are nothing new

Gran Chaser

Format: Saturn
Publisher: Sega
Developer: Nextech
Price: ¥6800 (£50)
Release: Out now (Japan)







The Terra levels of *Gran Chaser* are green and pleasant lands where the races take you through steep-sided canyons and across vast lakes



The attraction of the impressive-looking circuits soon pales when the flaws in the game become apparent



The exterior views in *Gran Chaser* are pretty but just aren't practical when it comes to gameplay

Racing games seem to be the benchmark of choice right now – which should have put Sega, old hand at creating arcade racers, in the, ahem, driving seat. But the Saturn conversion of *Daytona* was less accomplished than Namco's excellent job on PlayStation *Ridge Racer*.

At first glance, *Gran Chaser* seems to have fixed *Daytona*'s faults, boasting sharper graphics, 10 outlandish circuits in five settings and a splitscreen head-to-head mode. Everything moves at a breakneck pace, most of the courses have at least one breathtaking section, and the detailed texture-mapped tracks provide a convincing ground rush.

But problems abound elsewhere. The fact that the racing sleds float above the surface seems less a result of the futuristic scenario than an excuse for their unpredictable and unrealistic handling. Like *Ridge Racer*, the external views make for nice pictures but it's tough to play a good game using them. Things are definitely better from the cockpit view, but the woolly handling still leaves you floundering about the course and careening off the sides of the track. Different play options are available – time trials, races against a computer rival and a convoluted story mode – but they fail to inject the required excitement.

The splitscreen twoplayer mode is similarly flawed. More than half of each player's view consists of just the track surface, leaving a tiny sliver of screen to show the sides of the track and other obstacles. And, unlike in the oneplayer game, there's no radar.

Gran Chaser is yet another disappointing Saturn title, which could yet be further shamed by Psygnosis' markedly more impressive PlayStation game, *Wipeout*.

Edge rating: **Four** out of **ten**

More than a decade ago, a superficially simplistic but infinitely subtle and challenging sports sim set the standard for multiplayer enjoyment

Hyper Sports

Konami created the joystick waggling genre in 1983 with its *Track 'n' Field* coin-op. This was followed a year later by a game that still rates as the best of this (very) sorely missed bunch: *Hyper Sports*.

What made *Hyper Sports* stand out was its subtle combination of arm-punishing power and precision control. Of the seven events, some – like swimming and weightlifting – were simple all-out wagglers, while others – such as archery and the triple jump – demanded pixel-perfect timing and carefully controlled button presses and releases. Toughest of all was the pole vault, the last of the seven, which made it hard to clock the game and left high scores the province of the few *Hyper Sports* champions found in every arcade.

The physical nature of the gameplay could keep a bunch of pub punters entertained, but the nuances of the more demanding events also gave dedicated gamers plenty of scope. Playing *Hyper Sports* 11 years after its original release reveals not how basic the game was but how naive the description 'joystick basher' is. Mastering the individual events, chasing records, building a high score, getting 'perfects' which trigger special reward animations... it's textbook stuff, embodying all the essentials of classic gameplay.

Many later games – like Epyx's *World Games*, Ocean's *Daley Thompson's Hyper Test* and Konami's own *Combat School* – followed *Hyper Sports*' lead, but none offered the same well-balanced gameplay and high-score-chasing addictiveness. ∎



The triple jump requires a combination of high-speed waggling and precise judgement

Formats: Arcade (version shown), C64, Spectrum

Manufacturer: Konami

Players: 1-4

Released: 1984 (arcade); 1985 (home)

Edge invites contributions to Retroview. Entries must be in Edge style and approximately 250 words long. Published contributions will win their sender a year's subscription to the magazine. Address: Retroview, Edge, 30 Monmouth Street, Bath BA1 2BW. Fax: 01225 338236. E-mail: edge@futurenet.co.uk.



There are seven events in *Hyper Sports* (left to right, top row first): swimming, skeet shooting, long horse, archery, weightlifting, triple jump and pole vault. Complete a circuit and you start again from the beginning, with progressively higher qualification thresholds ensuring a consistently high challenge. This bevy of bouncing beauties (above, far right) is your reward for successfully getting through all the events for the second time

An audience with... Howard Lincoln



Photographs: Jude Edginton



Despite widespread doubts about its future, Nintendo is still the colossus of the games world. And the head of the firm's US division is one of the most powerful men in the entire industry. Nintendo Of America chairman Howard Lincoln talks to **Edge**

Howard Lincoln is a lawyer by training. He began his career as a judge advocate in the US Navy during the Vietnam war, and went on to become a corporate attorney in Seattle. It was there that he first encountered a small Japanese coin-op firm called Nintendo, for which he helped draft a contract establishing sole US distribution rights.

Lincoln was later called in by Nintendo to help with the copyrighting of *Donkey Kong*, and by 1982 his time was almost completely taken up with Nintendo business – tracking down coin-op counterfeiters and playing million-dollar hardball with a litigious MCA.

Asked by NOA president Minoru Arakawa to work for him, he accepted on condition that he be involved in all aspects of the business, not just legal affairs. He has played a major role at NOA ever since, first as senior VP and now as chairman.

Edge spoke to Howard Lincoln at the recent E^3 show in LA, where Nintendo was speaking softly but brandishing what it hopes will be several very big sticks.

Edge Why, in a nutshell, was the Ultra 64 delayed until 1996?

Howard Lincoln The reason was a quality issue. Given the quality of 16bit games like *Donkey Kong Country* and then *Killer Instinct* and *Donkey Kong Country 2*, we felt that we needed more time to get the quality level to the point where we were satisfied. The hardware is done... when I say that, there are always things which have to be tweaked, but SGI has accomplished what it set out to do – create the chips that we were all counting on – and we're very pleased. But hardware is only one part of the story. The other is this software issue, and I think it would have been a mistake to rush this product to the market. You only get one cut at this business, and I think gamesplayers are very conscious of the quality of software.

Edge It has been rumoured – and Hiroshi Yamauchi hinted as such – that Ultra 64 may in fact launch in December in Japan.

HL It's possible, and I'm aware that Mr Yamauchi has recently commented on that. Certainly, it is possible to launch a new hardware system in Japan in December. If the product is shown at the Shoshinkai show in late November, for example, it's logistically possible. The US market is an entirely different market and if we were going to launch in, say, November in the US, we really have to be in a position where we can tell our dealers now with 100 per cent assurance. Just the lead times are different for the US market; the logistical problems are different. NCL may well launch in December in Japan, but I can assure you that Mr Yamauchi is the person who is going to make that decision. So all I'm doing is merely speculating on what he may or may not do – he's going to make that call himself.

Edge How, then, was Sega able to roll out the Saturn so quickly in the US this spring, apparently out of nowhere?

HL I'm certain that Sega has been working on this introductory launch for a number of months – this didn't just happen out of the

blue. And because they were only working with a limited number of dealers – they were not making this available to all of their dealers – they could do it with a certain degree of confidence that it would not slip out.

Edge What parallels can be drawn between what we're seeing now with the launch of Saturn and Ultra 64, and the launch of the Genesis and SNES?

HL Well, if there were any mistakes made in the launch of Super NES, the timing – a year and a half after the Genesis – was not one of them. By the end of 1991 our installed base in the US 16bit market was greater than Sega's, even though Sega had been there since 1989. It was after that that Sega did a lot of things very well, in terms of pricing games like *Sonic* and in terms of marketing – television advertising and what not. I think the only parallel is that in addition to the necessity of having a powerful game platform, you have to have good games. It's got to be priced right and it's got to be marketed right.

One major advantage we have over Sega – other than the fact that on a worldwide basis our market share is much larger – is our financial condition. And that financial condition is only going to improve, given the fact that Sega – and, for that matter, Sony – are selling these new hardware platforms under cost, and that they are willing to lose a considerable amount of money. Presumably, they intend to pick it up or get even on the software, and that's a risky strategy because it involves millions and millions of dollars of losses that they will necessarily incur in 1995 in the US market. We, on the other hand, are not going to be incurring any losses in the US market.

Edge Surely the business model that you've just described is the traditional one in the videogames industry?

HL I don't think it's the tradition in our industry – at least, it's not Nintendo's tradition. The tradition is to sell hardware at a smaller profit margin than the profit margin for software. But would Nintendo introduce a hardware product knowing that in the US market it is going to lose $50-100 per unit? I don't think so. It's clear from the feedback we've obtained and what we've heard from dealers that Saturn is incurring a loss.

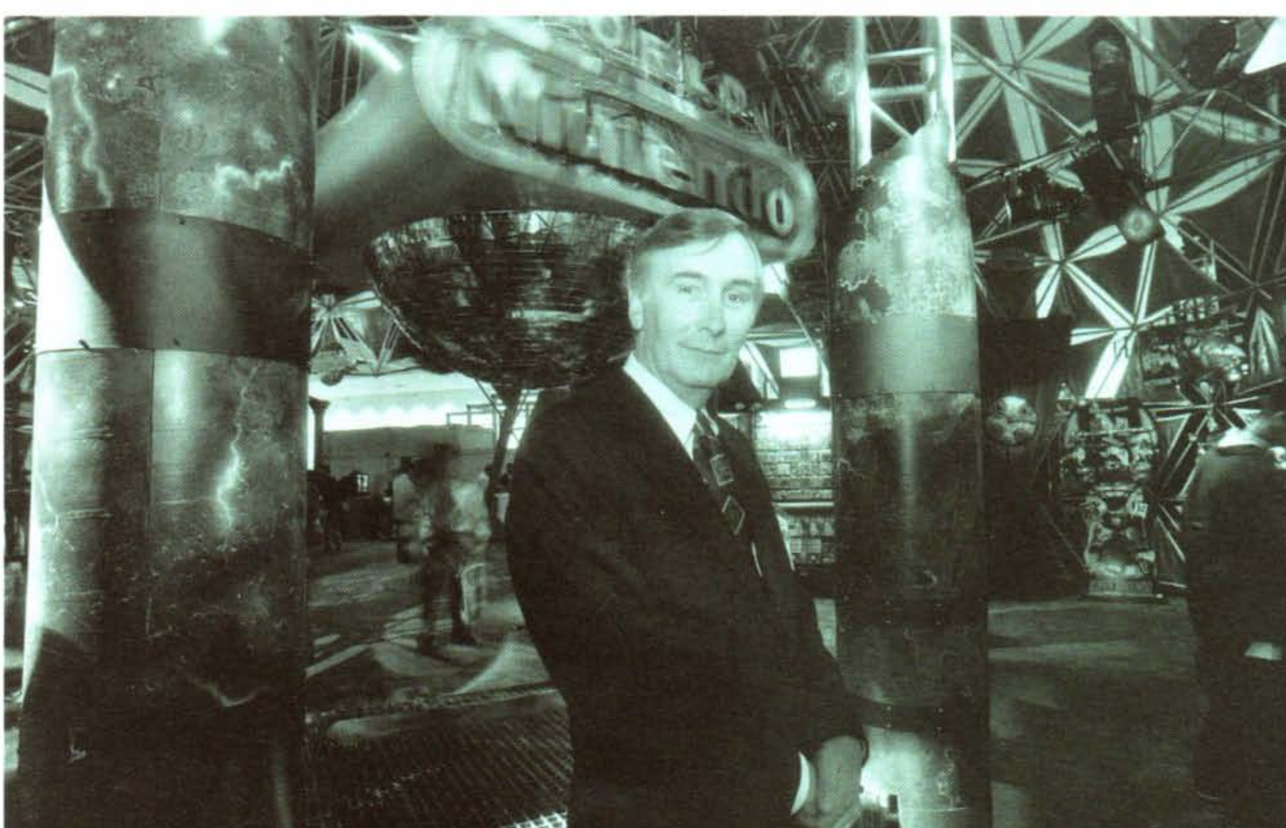
Edge You can now pick up a Super Nintendo for $100. Are you saying that's breakeven strategy for Nintendo?

HL We did not incur a loss on the sale of SNES hardware in the US either when we introduced it or right now. I was really focusing on what our strategy has always been in terms of product launch. Traditionally, both at launch and during the life of that hardware unit, we have not sold hardware below cost.

Edge How does 3DO fit into all this? Sega and Sony are taking anything up to, say, a $100 dollar hit on the cost of the hardware, and you've said that you're not going to take a loss but are prepared to cut your profit margin on software. What are

'Sega and Sony are selling these new platforms under cost. That is a risky strategy because it involves millions and millions of dollars of losses that they will necessarily incur in 1995 in the US'

Continued next page



Continued

3DO's chances against competitors who are prepared to do that?

HL 3DO is different because you've got manufacturers like Panasonic, Goldstar and what not who necessarily have to make a margin of profit on the hardware, so the 3DO model is much different from the typical Sega, Sony and Nintendo model. It's hard for me to compare the two, but the 3DO fiasco has proven two things beyond a shadow of a doubt. One, that you only get one crack at this thing – you don't get repeated opportunities to get your product or your pricing or your software right. The second thing is that you don't rely on other people to make good games. If you assume that these games will somehow fall out of the sky, you are going to be sorely disappointed. So the only thing that they have successfully accomplished so far is to sell a lot of development systems. But as near as I can tell, certainly in the US market and the Japanese market, the product has not been successful. Does that mean it will never be successful in the future? Well, who knows, but it is difficult for me to conceive that that product is anything more than just a lot of hype.

Edge Is it true that selling hardware or software at a different price in the US than in Japan infringes ITC trading laws?

HL There are certainly laws against dumping. There are laws that are unique to the US in that respect.

Edge The single biggest advantage the Ultra 64 has in terms of costing and price is the absence of a CD-ROM player. Was cost a major factor in your decision to make the Ultra 64 a cartridge machine?

HL It was one of the factors, I wouldn't say it was a significant factor. The decision to go with cartridges had more to do with the type of games that we were thinking of making and how we thought we could quickly get a large installed base. There is no question that the absence of a CD-ROM player reduces the cost of the hardware but I don't think it was analysed quite that way. I am told by Tom and other people at Silicon Graphics, as well as our Nintendo engineers, that some of the Ultra 64 technology simply cannot be done using a CD-ROM player as a software storage medium. Don't ask me what it is because I'm not a technical person. I know the SGI people have made that point.

Edge Assuming Sony does manage to launch at $299 this autumn, would it be reasonable to assume that the price will drop to match the Ultra 64's $249 price tag at launch next spring?

HL No, I don't think that is a fair assumption. It's an equally fair assumption that the ultimate retail price of the PlayStation will not be $299. Until the product reaches retail shelves in September, the price is just an announced price. Things have ways of changing.

Edge It's what hasn't been said about Ultra 64 that everyone is talking about now. There are all sorts of unanswered questions. Firstly, obviously it's a cartridge machine, but Peter Main said a year ago that there was a CD-ROM player in development planned for launch after the release of the machine. Is that still the case?



'Sony have the financial resources to get into the market and are quite capable of making excellent hardware systems. But the jury is still out on their ability to make a videogame'



HL About three or four months ago Mr Yamauchi commented that Nintendo was working on a storage accessory for Ultra 64, and that product was not the CD-ROM player. A further announcement will be made by Mr Yamauchi on that subject at some point in the future, but I can confirm that there is not a CD-ROM accessory planned for Ultra 64.

Edge Could you tell us a little bit about possible innovations for the Ultra 64's joypad? The Ultra 64 was conceived as a 3D world creator, and obviously the joypads we're used to are designed for 2D worlds. Many people now believe that a revolution needs to come in game controllers. Can we expect to see that in the Ultra 64?

HL You are very astute and you are very accurate. The game controller that you'll see from Nintendo for Ultra 64 at the Shoshinkai show in November will knock your socks off. It's the first thing you'll want to comment on. I can guarantee it.

Edge Who designed it?

HL The controller is designed internally and it is everything that you just speculated on. When we produced the shots of the Ultra 64, you saw the cartridge and you saw the hardware, but you didn't see the game controller. Nintendo has a history of making really exceptional game controllers, whether it's an NES or a Super NES, and you can expect history to repeat itself. In fact, I'll tell you that we think that, of all of the aspects of Ultra 64, the game controller will be the cat's miaow.

Edge Can we expect the system to look the same in every country?

HL Hopefully.

Edge And will it look like the version that's been exhibited already?

HL Yes. In terms of colour I'm not certain – we haven't put the finishing touches to it yet – but in terms of shape it's pretty close to the final version.

Edge What about the partners chosen for the Ultra 64? Obviously, Silicon Graphics speaks for itself, but there were some surprises over the last couple of years. Angel Studios and Paradigm are not the people that you would have immediately thought of as partners.

HL That's true, but the technology that we're going to be coming out with is going to require expertise in the area of graphics, and companies like Paradigm and Angel Studios are very highly regarded in the computer graphics area. You're absolutely right that Paradigm is not a videogame developer, but the games that come from both of these companies will be quite dramatic in terms of their use of graphics. And you should keep in mind that both of these companies are working with Nintendo – they are not thirdparty publishers from outside the company.

Edge How is that working out, because

very few people recognise the huge difference between developing 2D games and developing 3D games.

HL One thing Nintendo has always been very strong at is launching great software. I think the business has changed a little bit given the sophistication of the technology and the need to find people who are capable of programming this 3D environment. Nintendo has necessarily had to reach out to bring into its stable companies which have not traditionally been involved in the creation of videogames. We have excellent relationships with both Paradigm and Angel Studios. The work that we have seen from both companies today is outstanding. Mr Takeda, who is in charge of the Nintendo Ultra 64 project, is very, very pleased with what he has seen from both of these companies. Mr Miyamoto is involved, as are other creative people from Kyoto.

Edge We remember the glory days when the Super NES was first launched, with titles like *F-Zero*, *Pilotwings* and *Super Mario World*. Why did Japan never really exploit those games with sequels of equal weight?

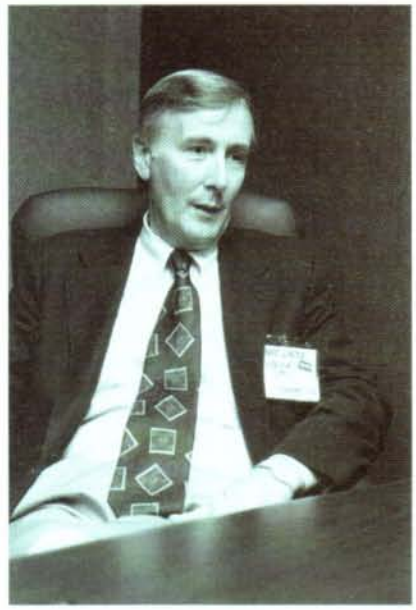
HL I think there are sequels for those games – let me put it this way, there are a number of games that Nintendo work on which do not see the light of day, because we're measuring the games that we're working on against the same quality level. There may well be sequels which I cannot tell you about or they are simply not public. The other reason is that people like Mr Miyamoto are not told: 'Okay, you are now going to make a sequel to *Pilotwings*.' That's not the way we treat our creative people, for good reason. So a lot of it has to do with their own choice as to what they want to work on.

Edge Don't you find it frustrating that most of your licensees haven't got the ability to take advantage of the SNES to the degree that a company like Rare can?

HL Well, I don't know if I would call it frustrating. I think that it's disappointing but in a way it's a reflection of the nature of this business – it's a very creative business. It's almost the same thing as saying, aren't you frustrated when everyone can't make it to a Steven Spielberg movie? Well, yes, I'm frustrated, but I'm sure a lot of people who make movies are frustrated.

Edge It must be more frustrating for the thirdparties than it is for you…

HL Yeah, I think so, but the things that Rare are doing are things that any thirdparty can do. Let's face it, Rare should be complimented on what they did. They set out deliberately to learn this new technology. Certainly, there was a period



when they were not making a lot of games, but they invested in the future and there's nothing that prohibits anybody else from doing that.

Edge Do you think that Sega has an advantage over Nintendo in terms of its very active and high-profile arcade division, with titles like *Daytona Racing* providing powerful brands and a great trickle-down source of expertise?

HL I don't know that I would categorise it as an advantage over Nintendo, but I certainly would agree that one of the reasons for Sega's success in the home market has been its roots in the coin-op market I think if you look at the people at Nintendo or the people we are working with, our outside developers, they too have roots in the coin-op business. They may not have made a coin-op game in Kyoto, for example, but certainly Mr Miyamoto is rooted in coin-ops, as are people like Joel Hochburg and Tim and Chris Stamper. And let's face it, *Killer Instinct* did very well as a coin-op game. So I think that probably what's fairer to say is that any company that's in the home videogame business that has a heritage in the coin-op videogame business has an advantage, particularly over companies that have never been involved in the manufacture of coin-op games. There is a discipline that seems to be learned in the art of making games that you tend to learn better if you are making a coin-op game as opposed to a computer game.

Edge In Japan, Nintendo has had several very high-profile stabs at establishing communication networks and linking Nintendo hardware. Is that something that you see happening in the United States?

HL I think that's certainly where gaming has a big future. Whether it's on the Internet or something along the lines of the Catapult or what not remains to be seen. We're very interested in that and have worked in the area for some time, but I regard that as just another hardware platform, and the key to success in that area is making a network game that everybody wants to play over and over and over again. It's funny, we've had a lot of success. It isn't anything to do with networks but we have been very successful with this Gateway project, putting videogames into hotels and into airplanes. So if we can put them in hotels and we can put them in airplanes, we can certainly come up with networking.

Edge Do you think the Sega channel is a concept that could grow?

HL I think it's a little bit too early to tell whether the Sega Channel will be a success. Certainly we are watching that very closely, but I think it's a little bit premature. They've invested a great deal of money in it, but the jury is still out on whether it will be successful or not.

Edge How important to Nintendo is Virtual Boy compared to Ultra 64?

HL Well, certainly in the Japanese and North American markets in mid-1995 it is a very important product. It's a product that's going to be launched in Japan in July and North America in August. We have high hopes for this product. We think that at $179.95 with the game included, the product will do very, very well, particularly in the demographic area that we are targeting, which is boys 7-14. We're very pleased with how the quality of the software is improving, and Mr Yokoi has done a really fine job in not only coming up with the product but in coming up with really excellent software which will be available at launch. Our projections are for 1.5 million hardware units in North America and 1.5 million in Japan. So it's a very important product. Also, it's exclusive to Nintendo – we're not competing with Sega or Sony for Virtual Boy, and that has its pluses.

Edge Is it a risky move by Nintendo? Was there much internal debate about whether it should be released?

HL No, I don't think there was any of that kind of internal debate. Mr Yokoi, who is the creator of Virtual Boy, is the guy who came up with Game Boy and a number of other products – for example, Game & Watch. With a proven track record like that, I don't think you're going to have a lot

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interview

Continued

of internal debate. You know about the reliability of his products. I think that what happens is that it's such a new and unique kind of thing, and the gaming experience is so different, that people have a tendency to step back and say, 'Wow, that's new or that's different, is this going to work or not?' Maybe I'm just a fatalist, but I think that we will do a first-class job of marketing that product, and ultimately the consumers are going to make the decision. The proof of the pudding will come this fall and this Christmas.

Edge There are arguably three major problems associated with Virtual Boy. Firstly, despite the advances you've made in the technology, the machine still has a monochrome display, and perhaps people are now expecting more than that. Also, gamers have to remain in one position to play. And thirdly, the 3D effect alone doesn't actually bring anything new to the gaming experience.

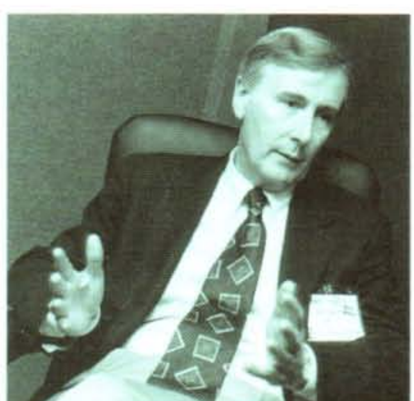
HL I can see that. I think there are limitations and advantages in any videogame product and any videogame experience, and I'm sure all the disadvantages you've explained can be quickly turned into advantages, particularly by our marketing people. My recollection is that there were similar questions about Game Boy on the part of a number of people when we launched it. Would, for example, anyone have predicted that seven years after its launch we were still selling three million Game Boys a year in the US? I don't think so. So yes, the display is monochromatic, but it does produce the 3D experience. Yes, you have to look through it as opposed to playing it on a TV set and all that. But the reaction that we have received from focus groups, particularly in that age category of boys aged 7-14, has been very, very high. Whenever we introduce a product like Virtual Boy or Game Boy or Super NES, there are always inherent risks, but ultimately the product is judged by our shareholders in terms of whether it sells and whether the company makes a profit.

Edge It's gone down in videogames lore that, on seeing the Game Boy, Sony said that it should have been a Sony product. Designers in Sony's lab apparently even got the sack because of it. Do you think they're saying the same thing about Virtual Boy?

HL I really don't know. I didn't realise that they had said that about Game Boy. Virtual Boy is like any other consumer product – you're always taking a risk that it will not be accepted. It's just like any movie – people don't actually start out to introduce bad movies.

Edge Does Nintendo have plans to tackle the older gamesplayer? The core market is obviously 7-14 year old, while Sega, for example, seems to be going for a more broader age group because they have more disposable income.

HL Well, I think Nintendo are just like Sony and Sega. We'd love to be able to expand the demographics of our core users. We would love to have 60-70 per cent of our primary gamesplayers aged 7-70, but that's not reality so far in the marketplace. While Sega and Sony have indicated that they are going after older demographics, that's not a self-fulfilling prophecy. It is argued that the people who will more than likely spend most of the money on Ultra 64, particularly the software, will not be the traditional videogamers and the traditional demographics. If the demographics expand simply because the price is increased or the games become, say, more realistic and therefore more appealing to a wider demographic range, that's great – it will just be my speculation if that will occur. Certainly, if you eliminate many of the things that you find in traditional videogames from a technology standpoint, such as the flickering images, the 2D shape and movement of the characters, the





blocky polygons and what not, you in turn create seamless 3D graphics. It would seem that that might appeal to a broader demographic. That's what Sega and Sony think and that's what we think too.

Edge About the idea of more sophisticated imagery appealing to an older audience... is there a suspension of disbelief or a leap of imagination required to identify with these little blocky characters that somehow children are able to do and adults aren't?

HL Yeah, I think that's true. I mean, there's got to be some reason why kids tend to like videogames more than most other people. Maybe they get more into the games than adults because of some of these things like small characters – fuzzy characters, however you want to put it. I hope that the demographics expand and I don't disagree with Sony and Sega for having that view, but we're certainly not going to put our initial marketing dollars against demographics that are not proving to be where our core audience is – that would be absolutely loony.

Edge Who would you say was Nintendo's greatest rival?

HL I think we regard both Sega and Sony as very strong competitors in this business. Certainly Sega, because they know how to make good videogames and hunt a market down, and they have established themselves in major markets around the world. We also regard Sony as a legitimate competitor because they have the financial resources to get into the market and from a hardware standpoint are quite capable of making excellent hardware systems. At this point, the jury is still out on their ability to make a videogame. Even though they have been in this business for some years now, they haven't made what you would call a world-class videogame. So that side of the coin remains to be seen.

Edge Have you enjoyed the battle with Sega over the years?

HL Yeah, I have enjoyed it, sure, but it's not personal.

Edge Do you talk to Tom Kalinske if you pass him in the corridor?

HL Yeah, I like Tom a lot. I think he's a neat guy and I enjoy being around him. But we are competitors and, you know, there are going to be times when I'm taking shots at him and he's going to be taking shots at me, or I'm going to be taking shots at Sega and they're going to do everything they can to convince people that they walk on water and Nintendo doesn't, but it's all part of the game. It's certainly clear that the level of competition is very high and the people who really benefit from this competition are the consumers.



Send your **questions** to Q&A, **Edge**,
30 Monmouth Street, Bath, Avon BA1 2BW

Q I own a 3DO Multiplayer. When the PlayStation and Saturn are released in the UK, I'm worried that the 3DO will be forced out of the market. Could you please answer my questions.

1. Does 3DO have a good sales record since its release?
2. What are its current sales in the UK?
3. Have sales of 3DO been greater than those of the Jaguar? Which is selling best?
4. Will the 3DO drop in price when or before the PlayStation and Saturn are released?
5. I know TV advertising is costly, but why hasn't 3DO advertised its machine in a similar manner to Sega or Nintendo, who advertise their hardware on TV? Surely this couldn't have been a problem, with the backing of Matsushita. I believe 3DO sales would be much increased by TV advertising.

Mark Hankin, Cheshire

A **1. & 2.** It depends whom you ask. The 3DO Company claims that the machine is selling well at £400, and that this month's Goldstar launch is a significant development for the platform. However, only 30,000 units have been sold to date in the UK, and there's little evidence to suggest an impending buying frenzy for the machine.
3. The 3DO and Jaguar have sold approximately the same number of units – even though the 3DO retails at twice the price of the Jaguar. Atari's position was helped by the closure of the Rumbelows chain – around 5000 unsold Jaguars were shifted at a reduced price.
4. At present, there are no official plans to reduce the price of the machine, but discounting by individual retailers – like Calculus and Our Price – is becoming more common.
5. Pre-Christmas 1994 would have been the best time to run an ad campaign; a series of ads at this time of year would be a case of shutting the gate after the horse has bolted. It's worth remembering that although Matsushita is backing 3DO, it doesn't represent a bottomless pit of cash. And Europe is seen as the least important of the three zones, so risks are rarely taken with marketing strategies.

Q I am writing about the Sega/Atari crossover deal. Rumour has it that *Daytona* is due to appear on the Jaguar. Could you please answer my questions about this.
1. When will the game appear, if at all?
2. Has the Jaguar got any advantage or extra processors which can help cope with micro-texture reflections, as the Jaguar has very good texture mapping?

Tristram Clark, Guildford

A Atari does not have carte blanche to copy Sega's titles, but there is an agreement that certain titles can be ported after a set period – usually six months. Were *Daytona* to appear on the Jaguar, it's highly unlikely that it would match the graphical flair of the Saturn game. The Jag is a fast machine but texture mapping eats heavily into processor time.



Will 3DO's M2 accelerator be available as a plug-in card for the PC? asks Stuart Duncan

Q **1.** What has happened to the CD-ROM add-on for the SNES that you sais was waiting at NCL's labs?
2. *Killer Instinct* on the SNES? I think they (Rare and Nintendo) have taken it too far this time.
Please fill me in on this latest miracle quest.

Jay Rourke, Blackpool

A **1.** There are many hardware projects at NCL that never see the light of day. Given Nintendo's decision to reject CD-ROM technology for the Ultra 64, it now seems doubtful that the SNES CD drive will ever appear.
2. With Ultra 64 now delayed until spring 1996 in Europe, Nintendo needs a big Christmas seller. With *Killer Instinct* (originally planned as the Ultra 64's launch game) and *Diddy Kong's Quest*, it is hoping to plunder the 16bit market for some time before moving on.

Q **1.** Will the 3DO Blaster for the PC be upgradeable to M2?
2. Do you know if M2 is planned to be made into a PC board?
3. Are there any other plans for consoles to be converted into PC boards?

Stuart Duncan, Edinburgh

A **1. & 2.** It's not yet known if the 3DO Blaster card is upgradeable, but it's possible that a new card will be released (with all the 3DO M1 routines in software). Given the polygon performance of M2, PC card manufacturers may wish to capitalise on its potential, although the lukewarm reaction to Creative's 3DO Blaster card doesn't bode well for the chances of it appearing.
3. A Jaguar board was planned but has been put on hold. A PlayStation board seems more likely given Sony's PC-based development path.



Atari has the rights to Sega classics like *Virtua Fighter* (right), but until then it is stuck with the polygonally challenged *Fight For Life* (left)

Q and A

You can rely on Edge to cut through the technobabble and give you straight answers. Write to: Q&A, Edge magazine, 30 Monmouth Street, Bath, Avon BA1 2BW. Alternatively, fax us on 0225 338236, or e-mail us at edge@futurenet.co.uk.

Edge regrets that it can't answer questions personally, by phone, post or e-mail.

next **month**

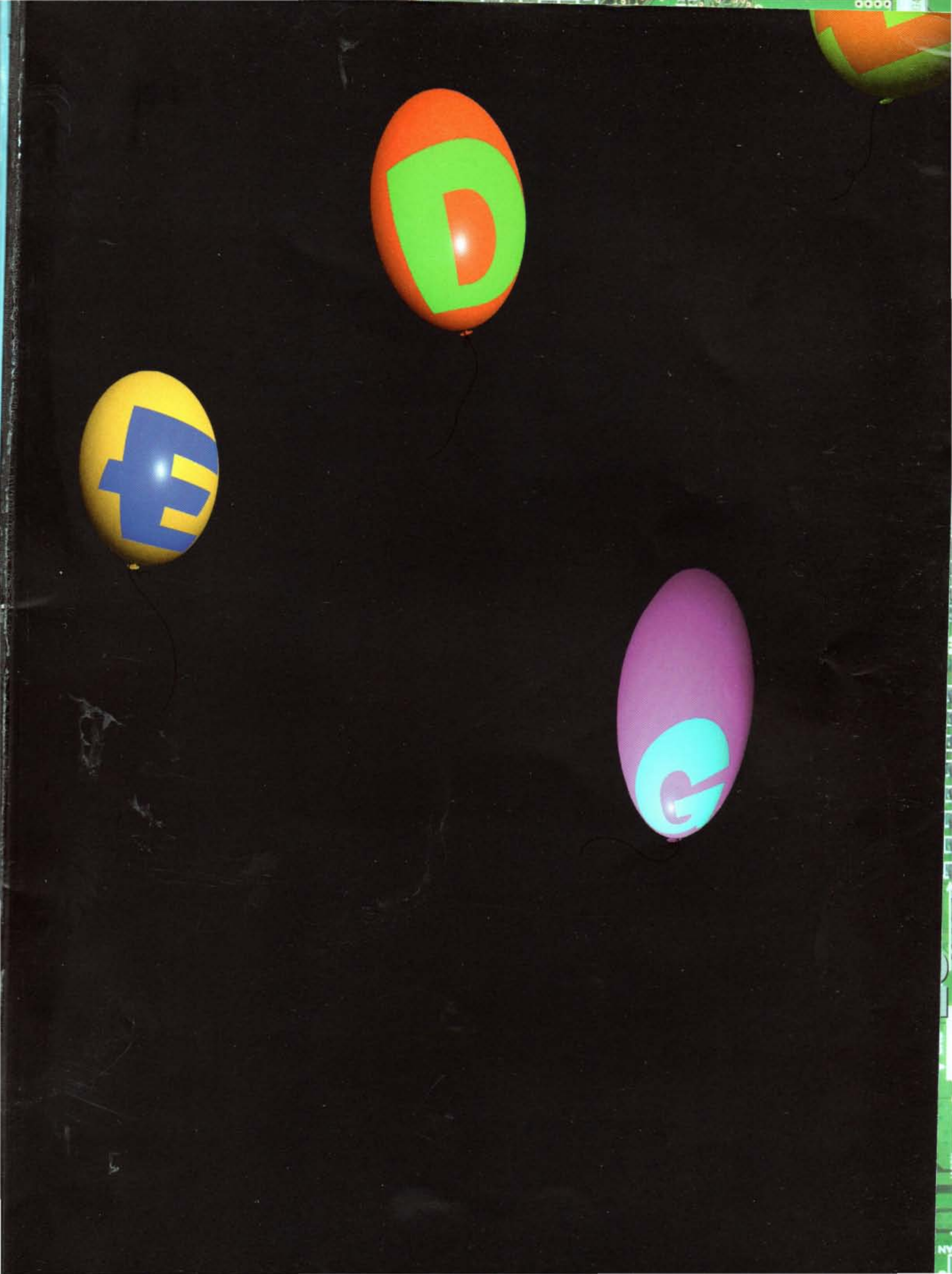


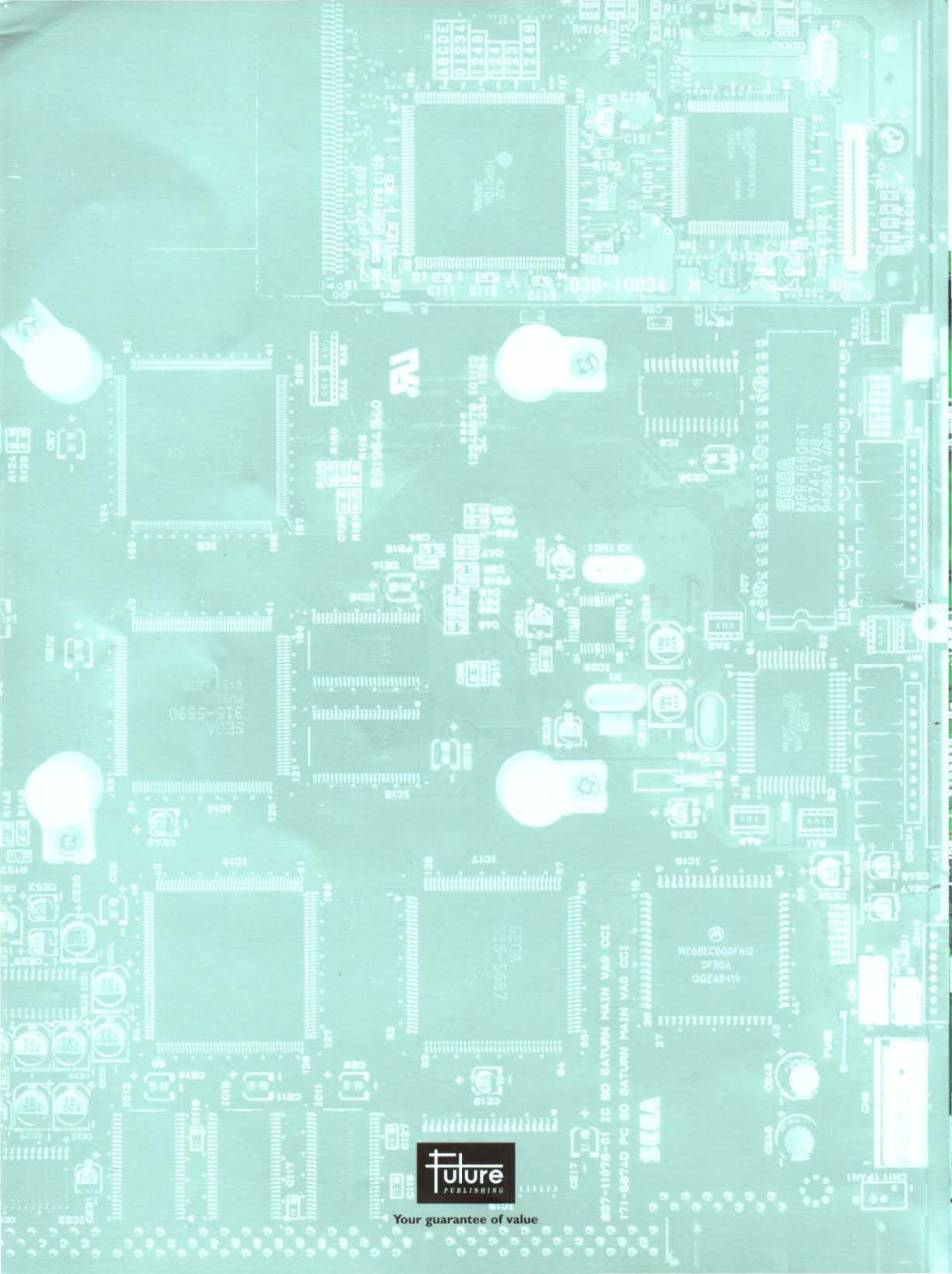
Just missing this issue was **Edge**'s promised in-depth look at motion capture and the companies pushing the envelope in this technology-driven field. You can now look forward to it in **Edge** 24. With sophisticated animation becoming a prerequisite for interactive entertainment, **Edge** talks to experts and discovers a wealth of game projects which make stunning use of digitally captured movement.

Also in **Edge** 24, a report from Dallas-based 3D specialist Apogee – pioneer of the try-it-buy-it shareware concept. Along with fellow Texans id Software, Apogee has done more than any other company to shake off shareware's bedroom programmer stigma. Its latest efforts encapsulate all the latest advances in fast 3D graphics.

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